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TECHNICAL REPORT CERC-89-17

US Army Corps of Engineers

LOS ANGELES AND LONG BEACH HARBORS MODEL ENHANCEMENT PROGRAM

TIDAL CIRCULATION PROTOTYPE DATA COLLECTION EFFORT

Volume II

APPENDIXES D THROUGH I

by

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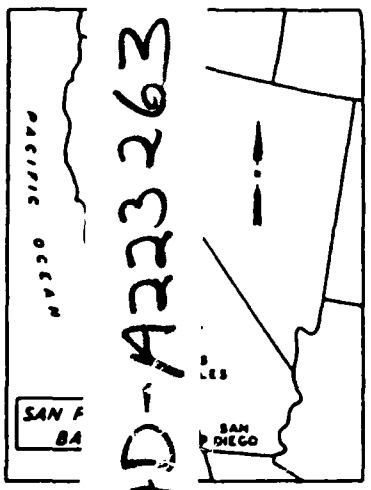
Coastal Engineering Research Center

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
3909 Halls Ferry Road, Vicksburg, Mississippi 39180-6199



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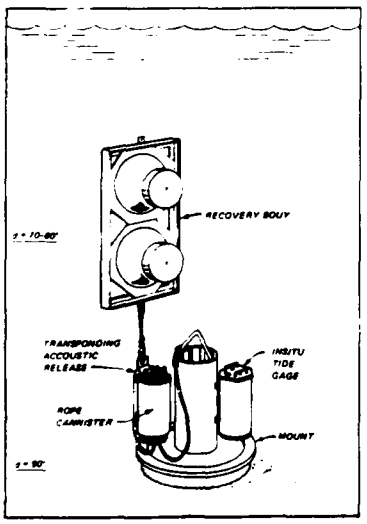

December 1989
Final Report

DTIC ELECTE JUN 20 1990 D

Approved For Public Release; Distribution Unlimited

Prepared for US Army Engineer District, Los Angeles
Los Angeles, California 90053-2325
Port of Los Angeles
San Pedro, California 90733-0151
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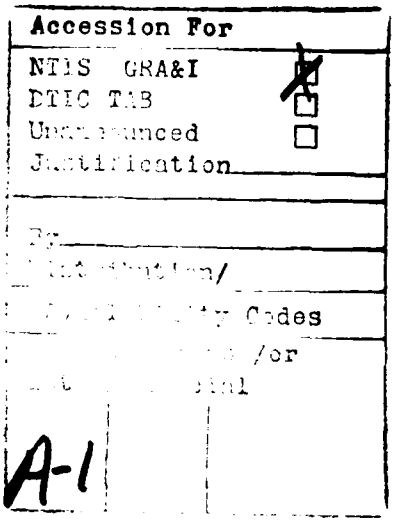
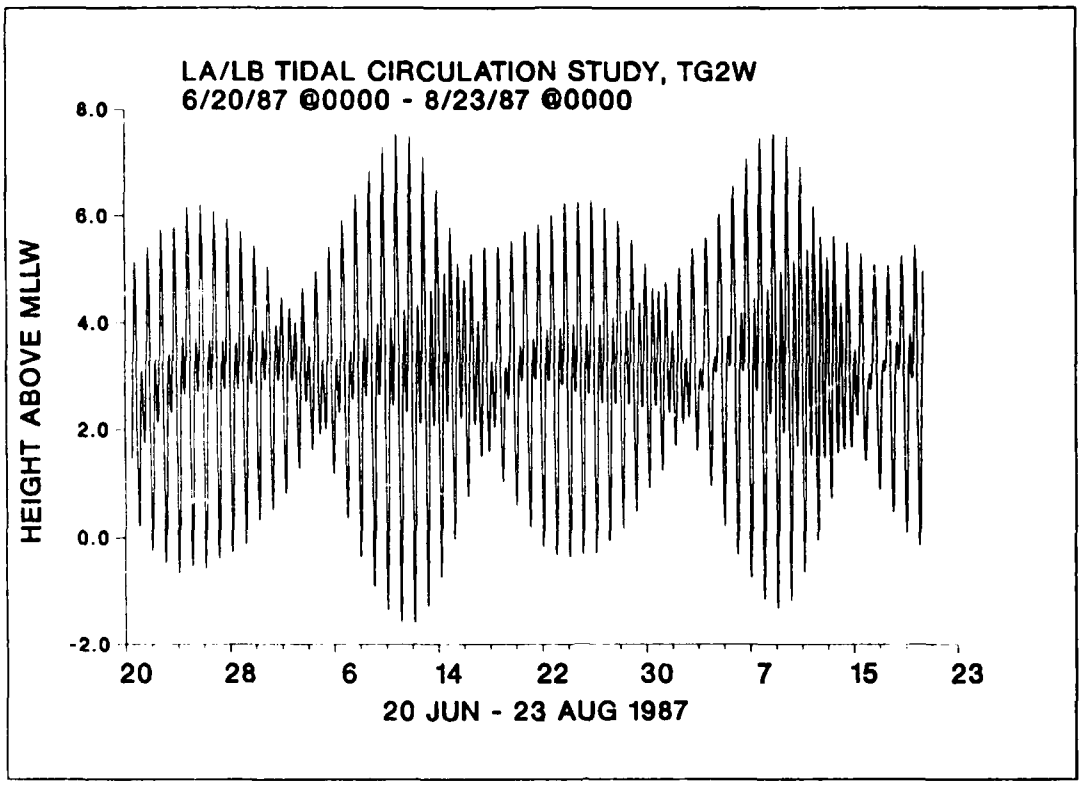
APPENDIX D: TIDAL ELEVATION TIME SERIES PLOTS

This appendix contains plots of tidal elevation time series. Primary station time series are denoted by TG*. Secondary station time series are denoted by LA* or LB*.

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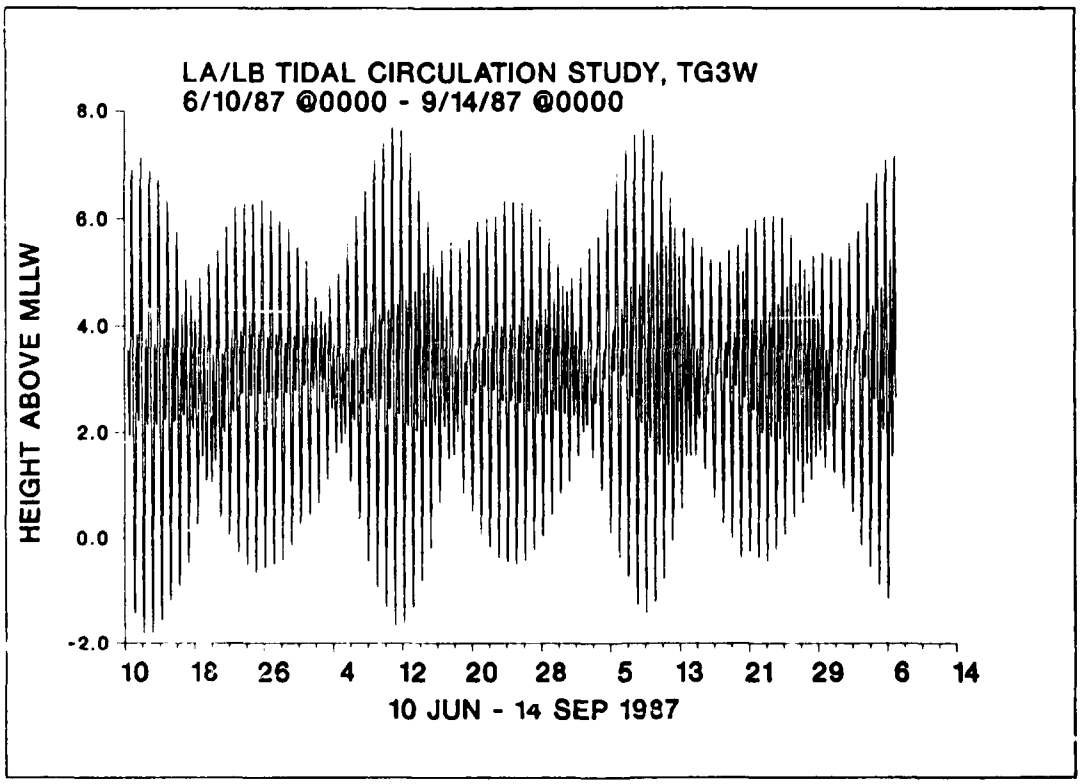
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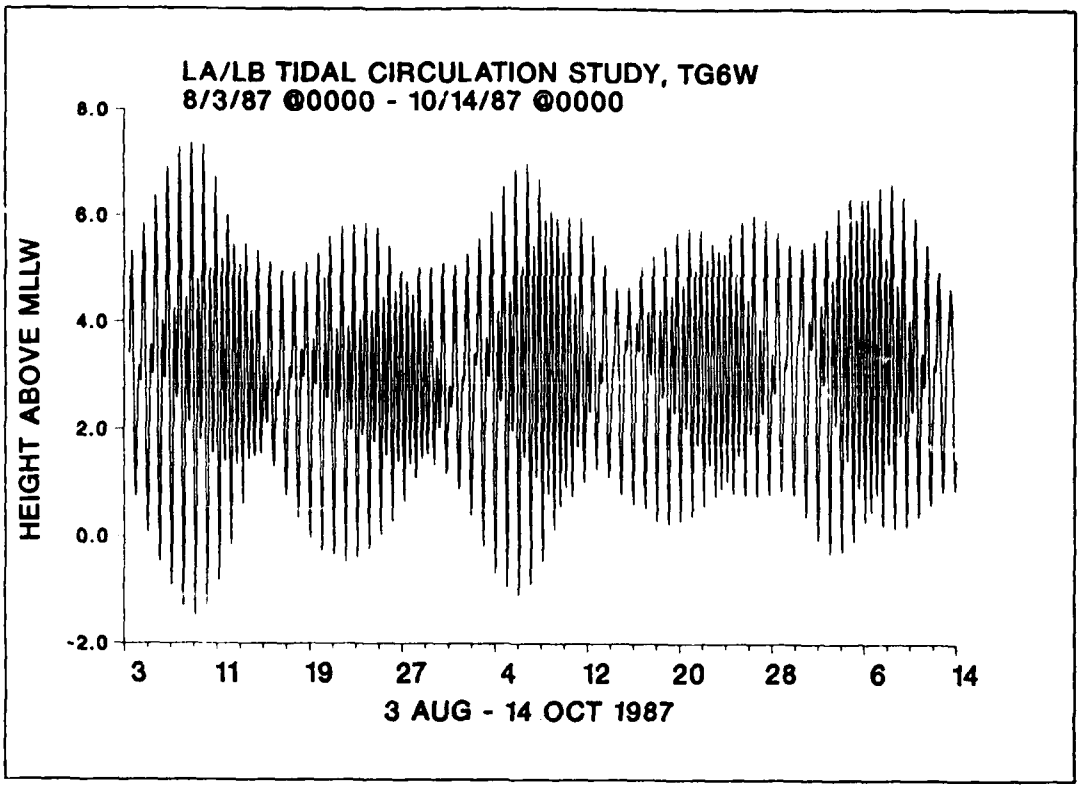
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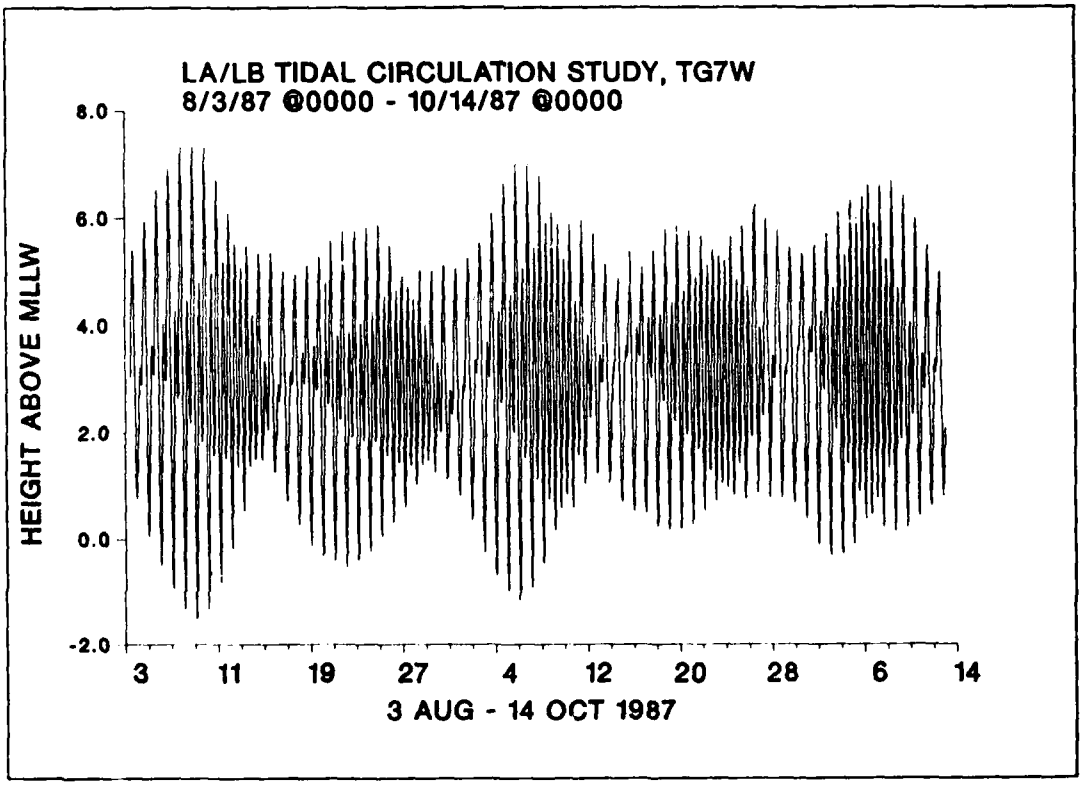
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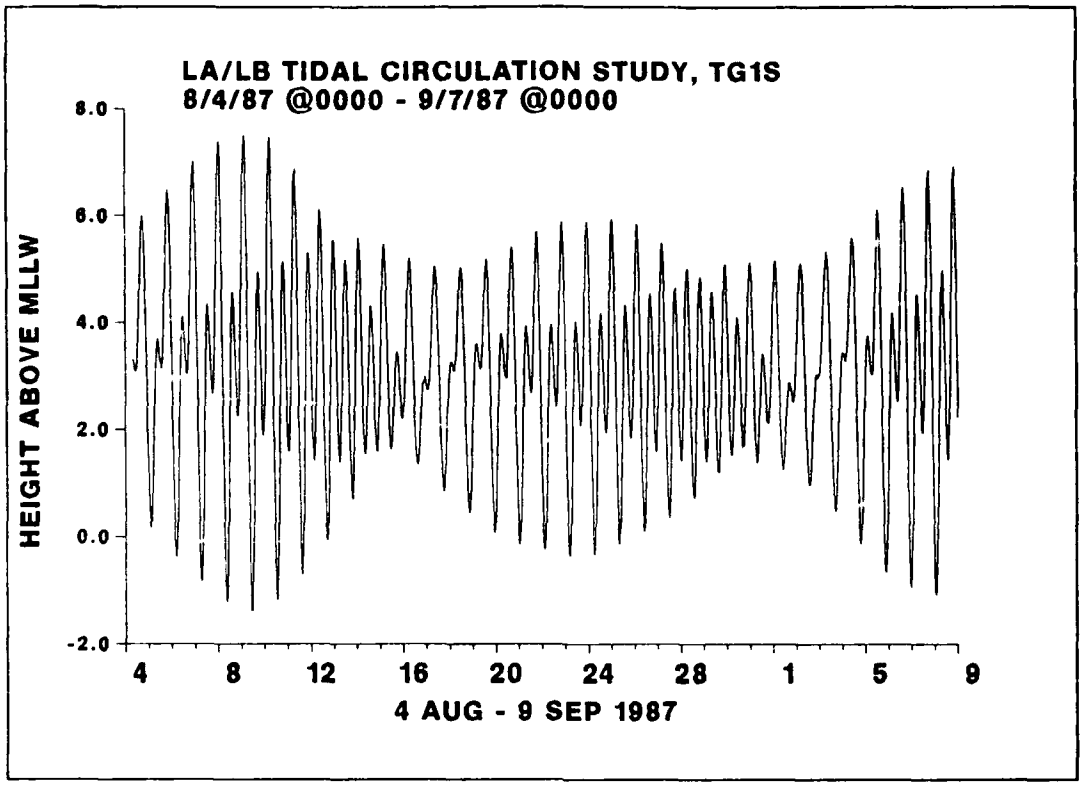
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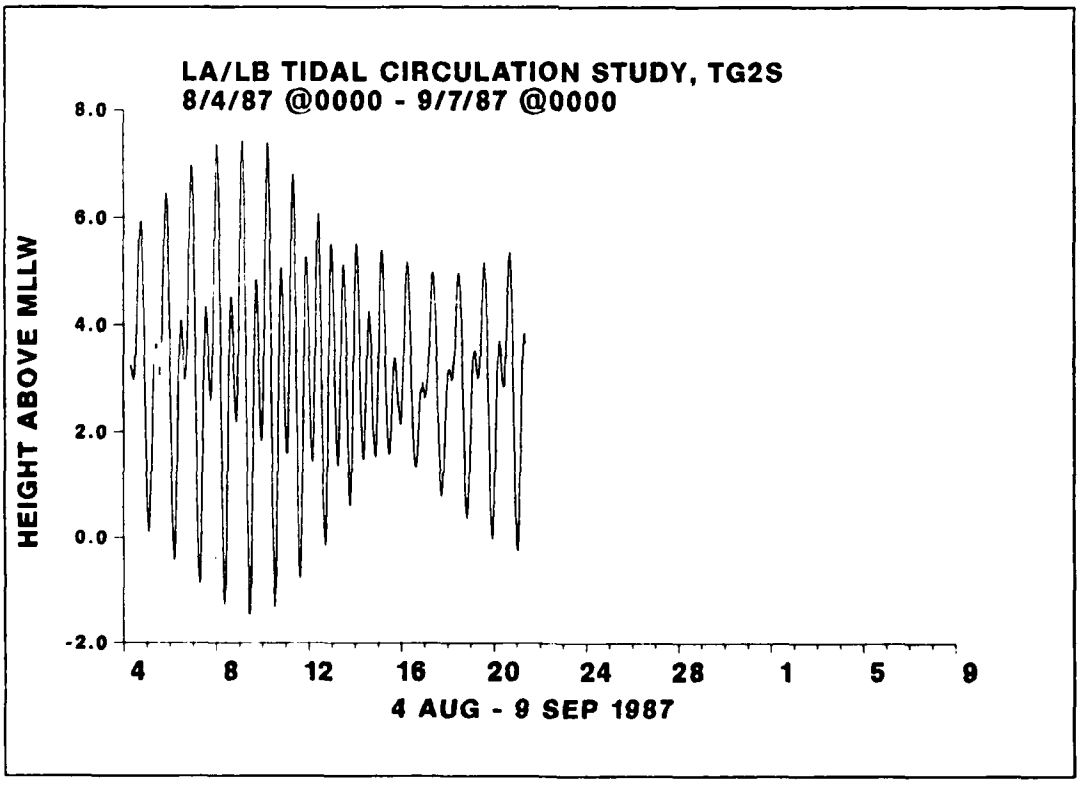
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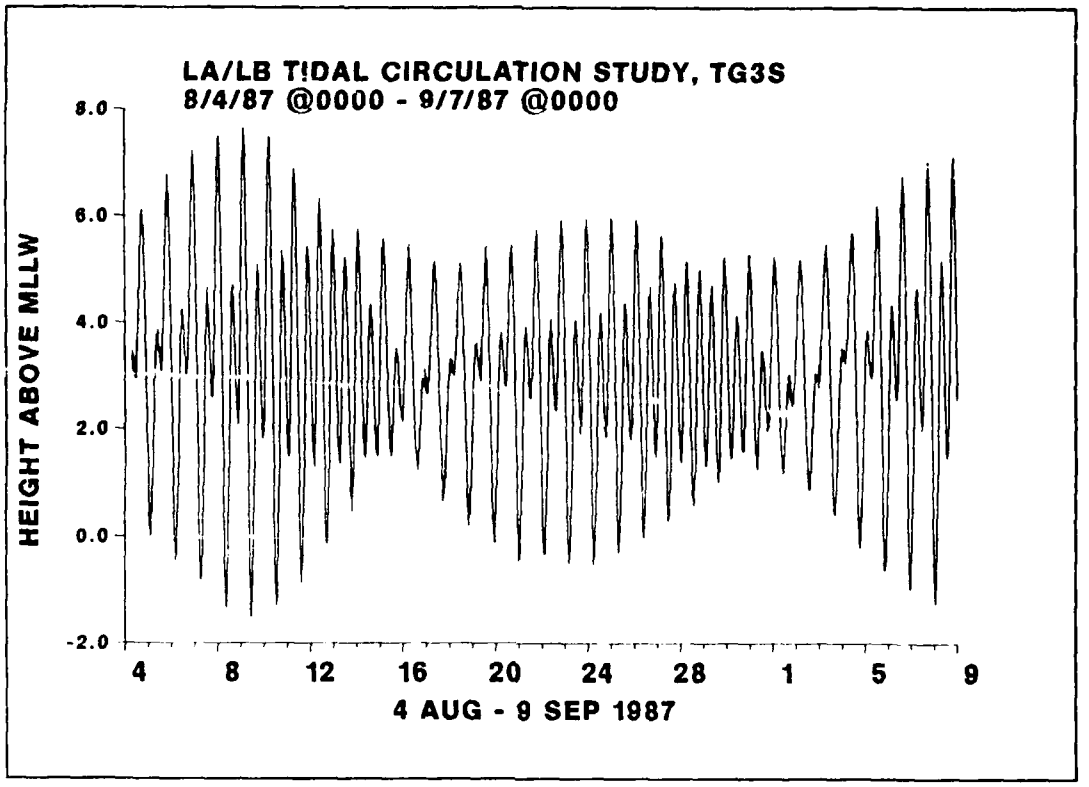
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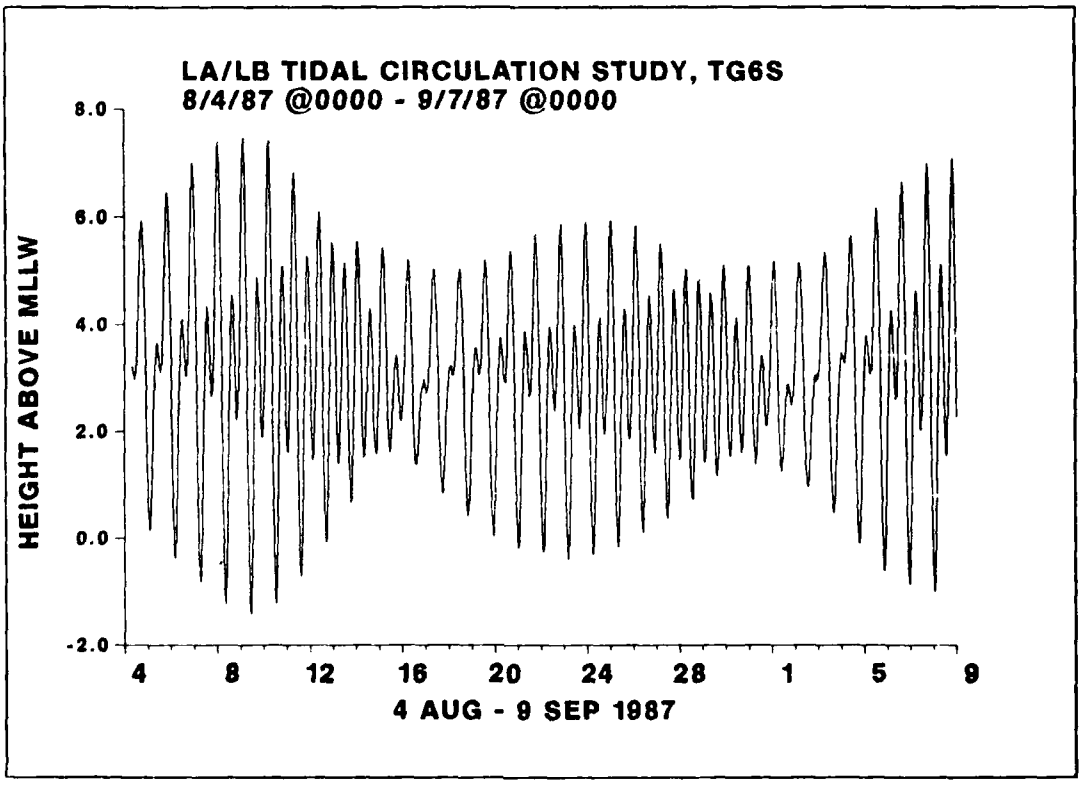
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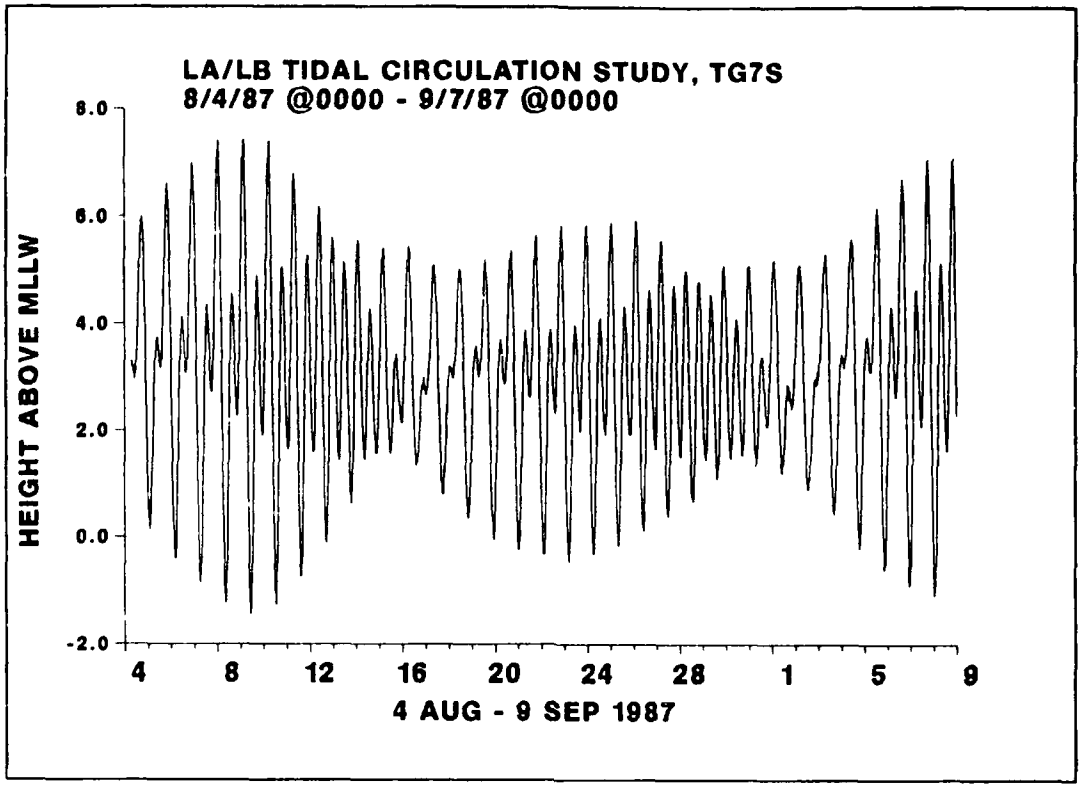
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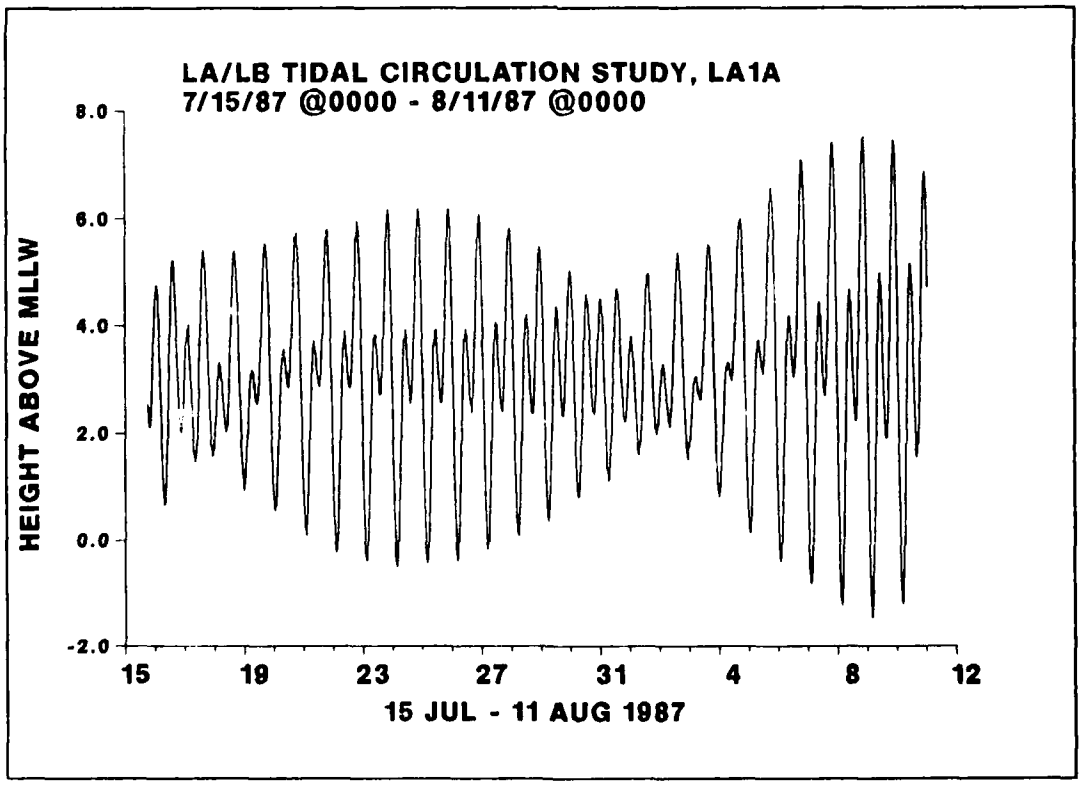
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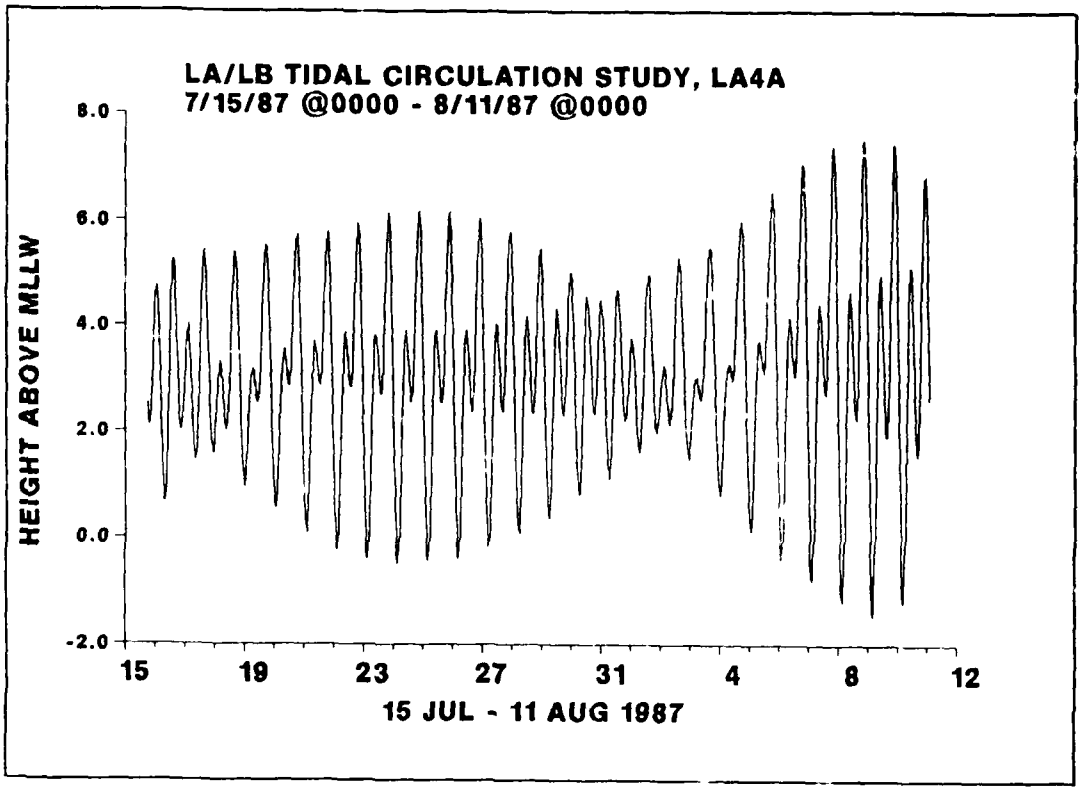
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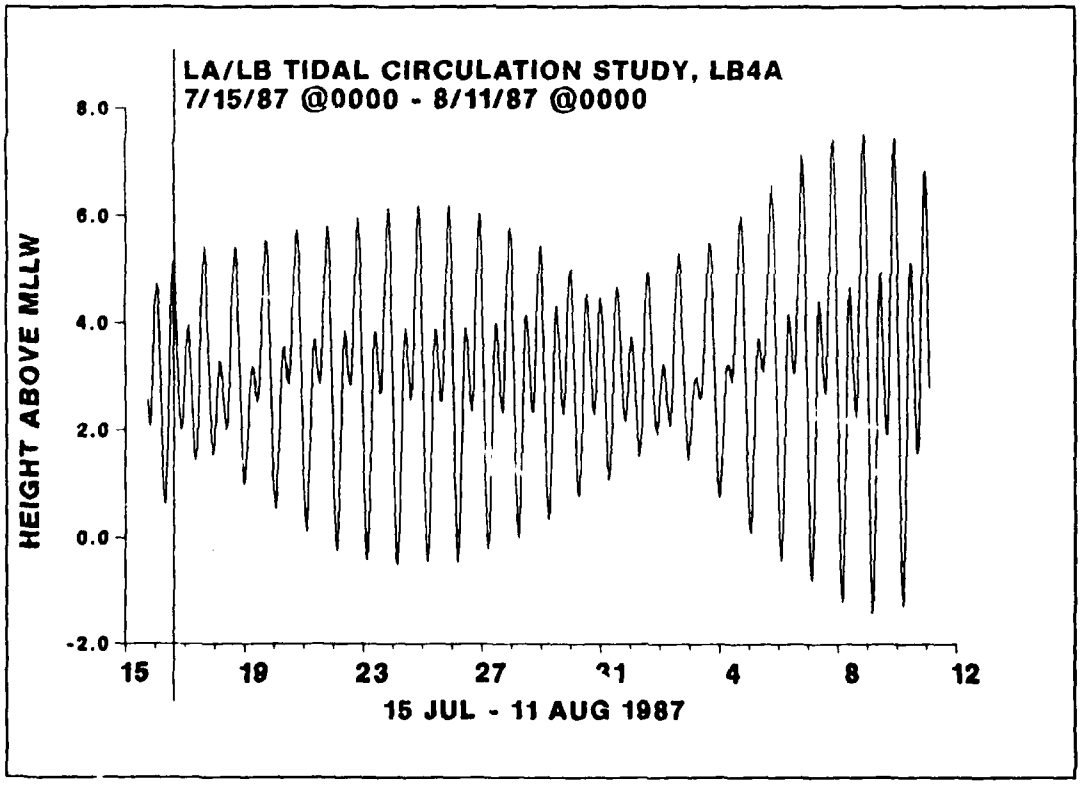
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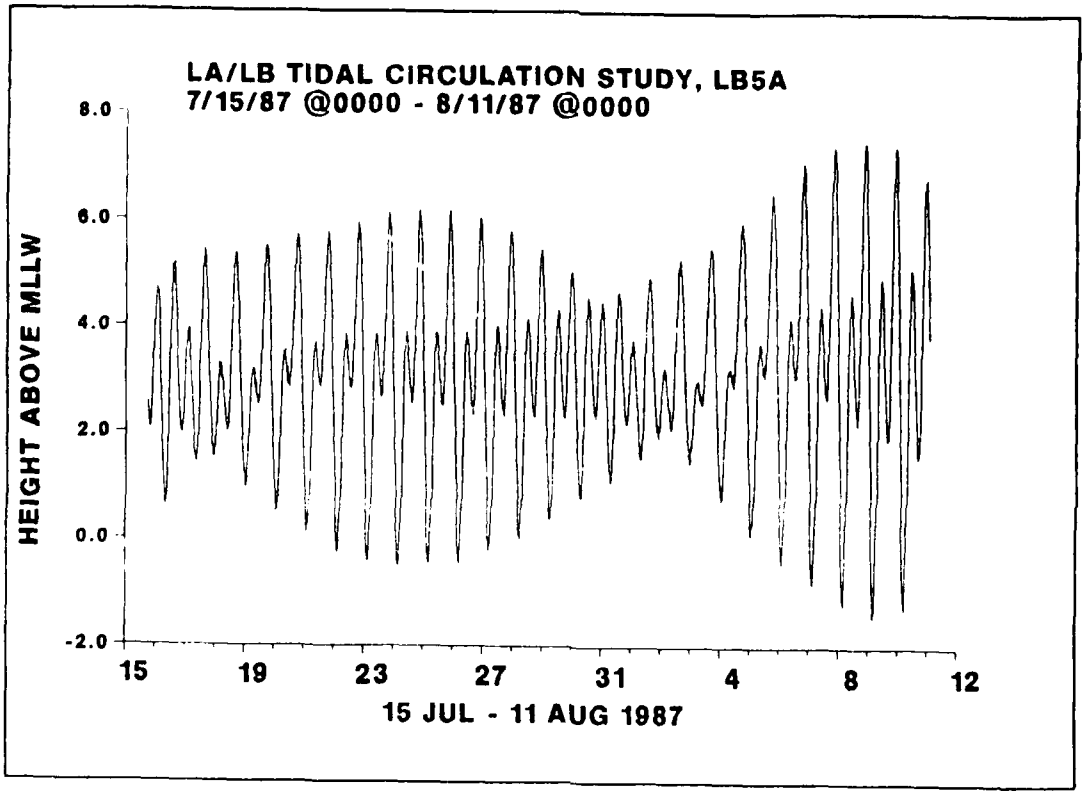
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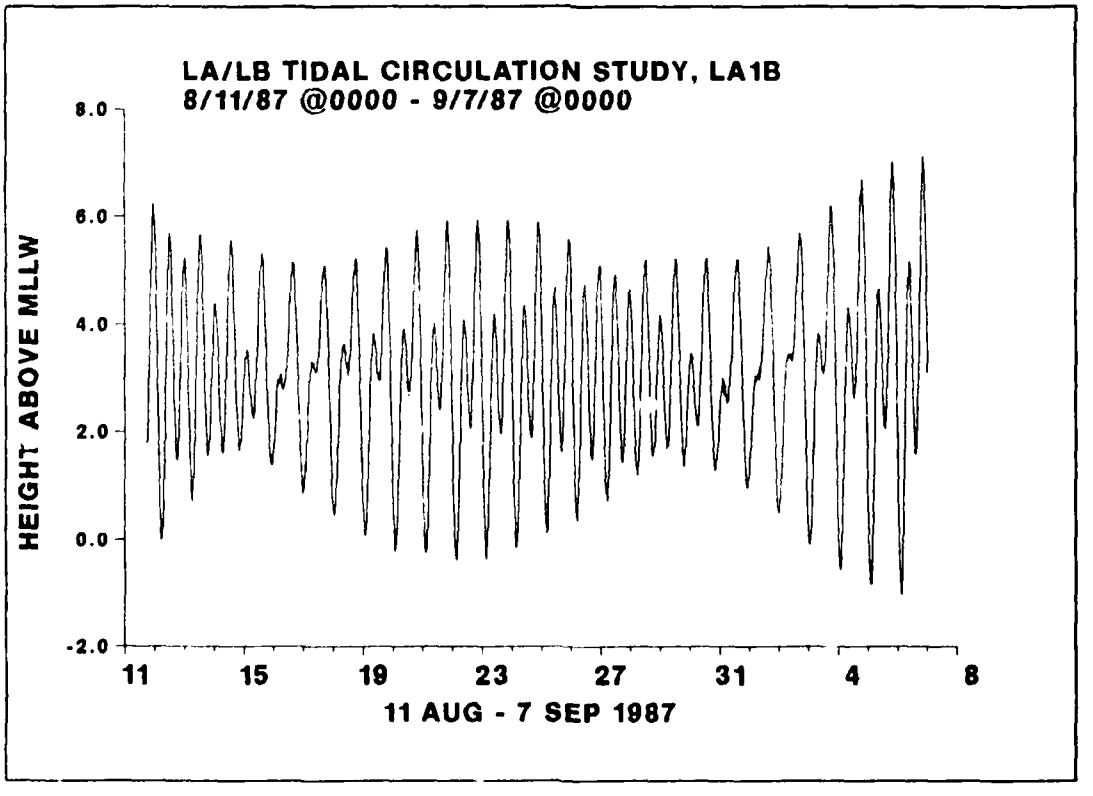
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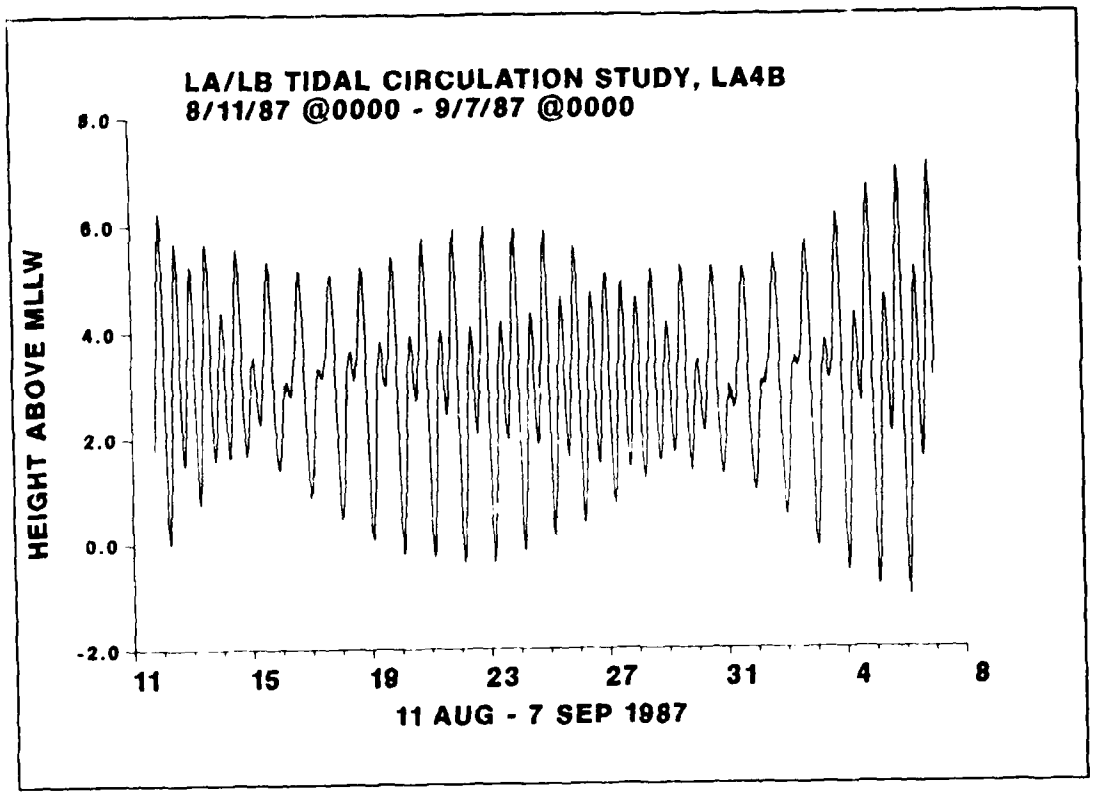
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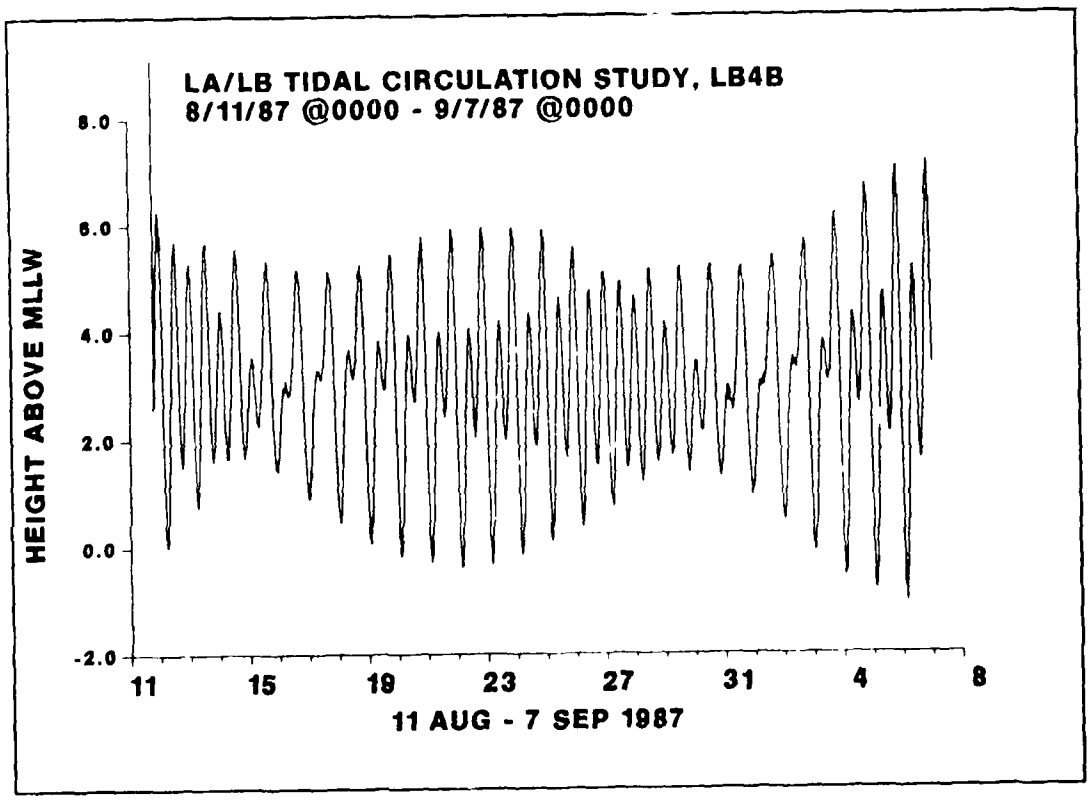
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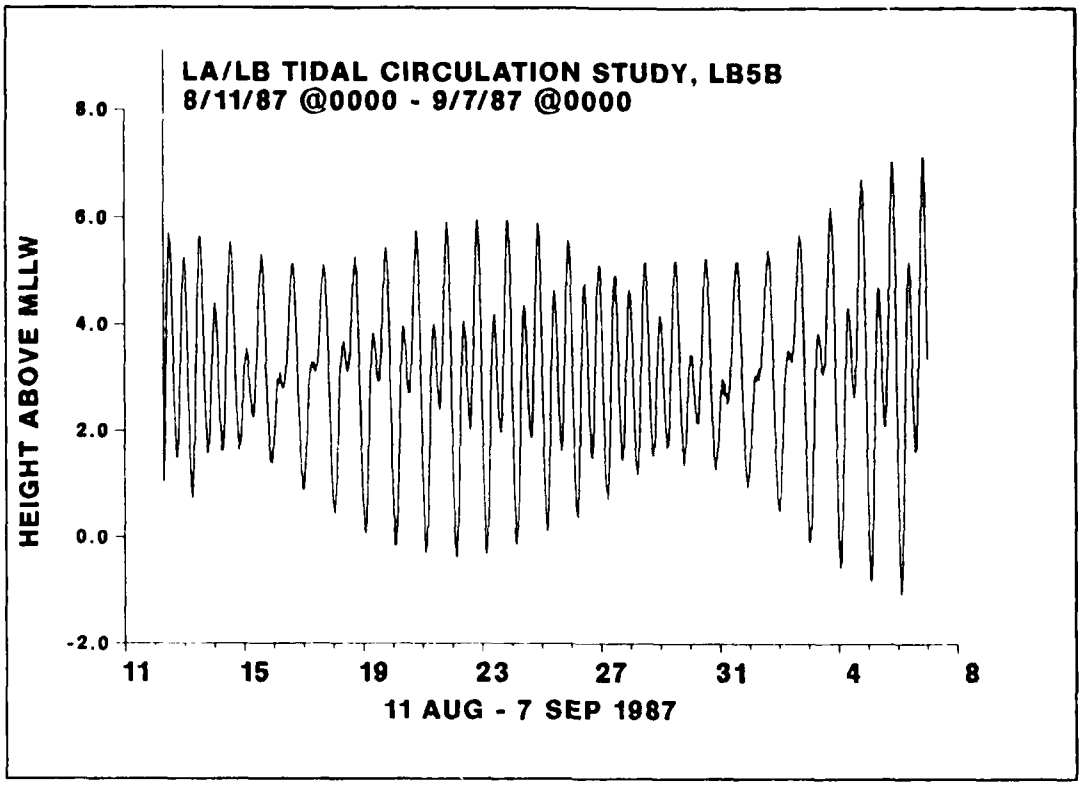
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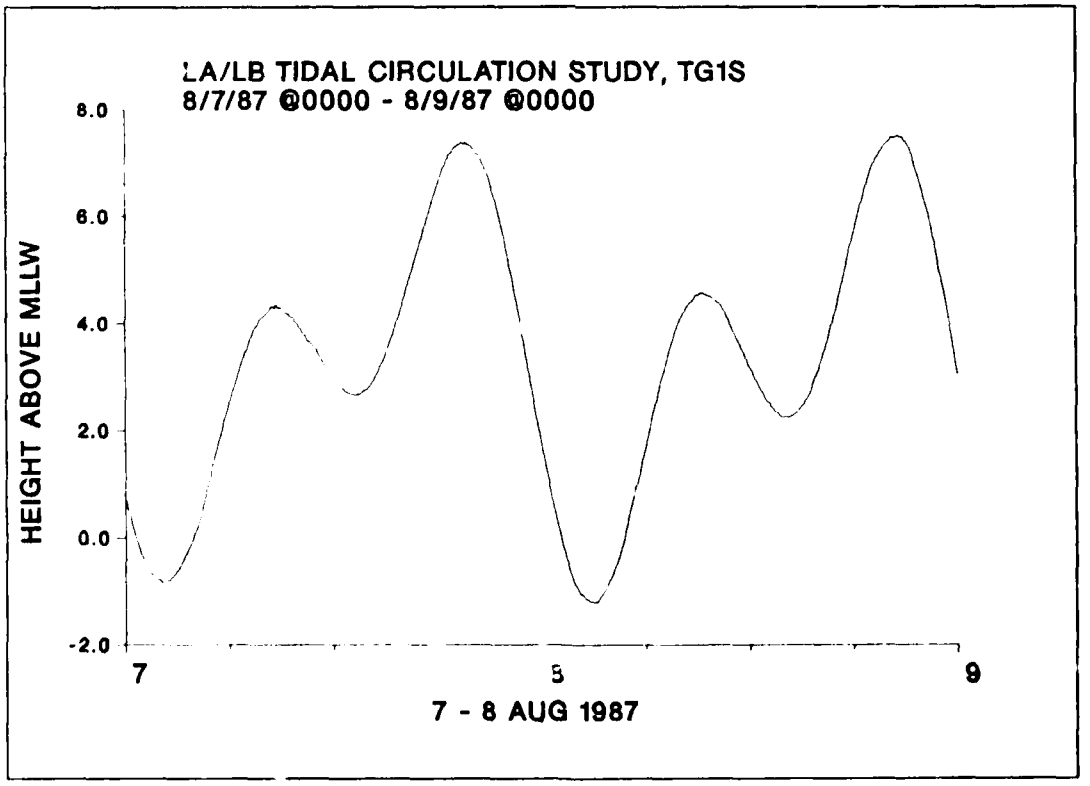
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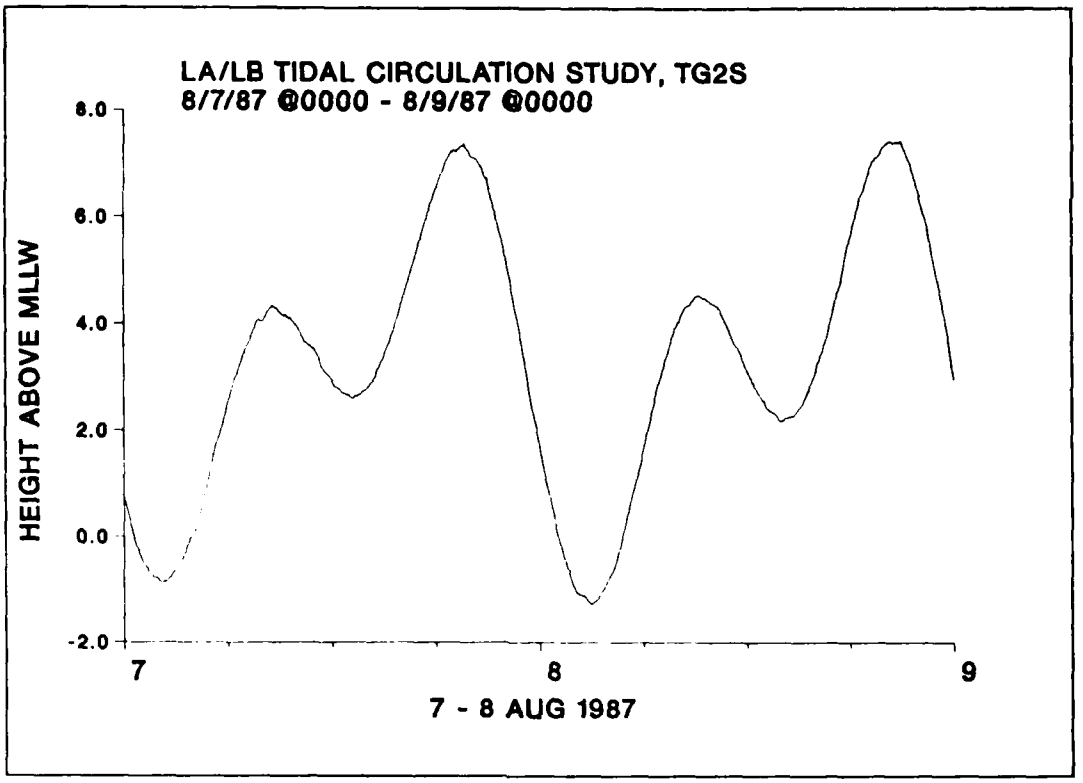
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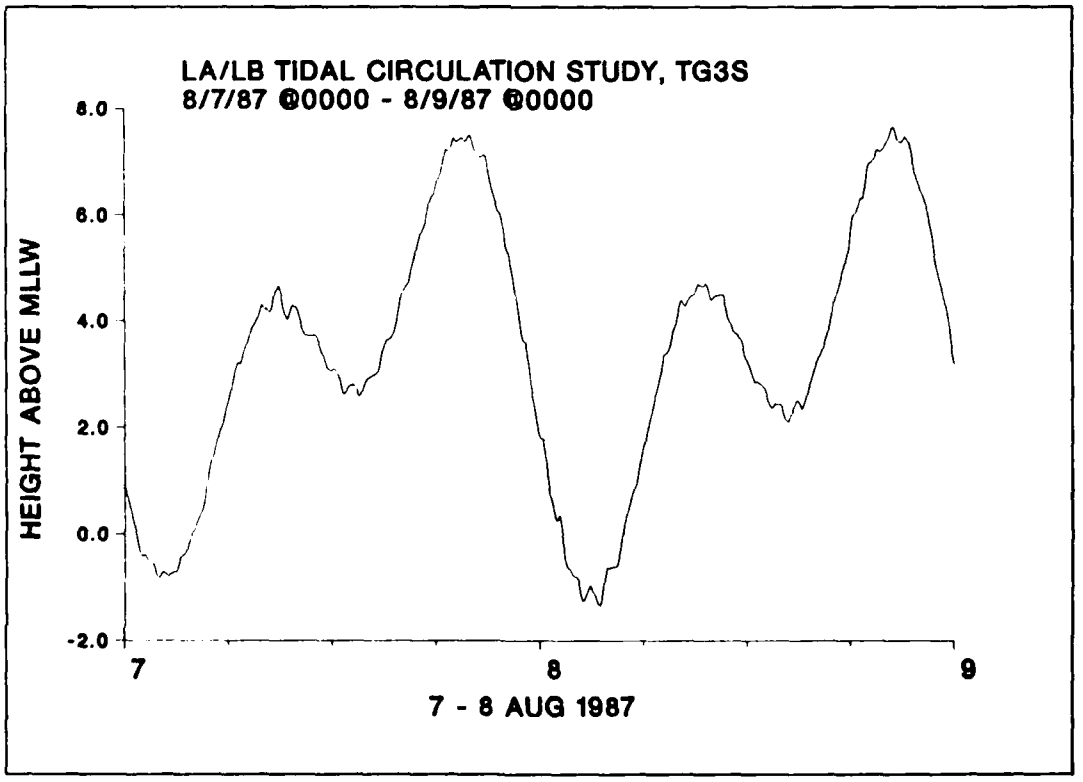
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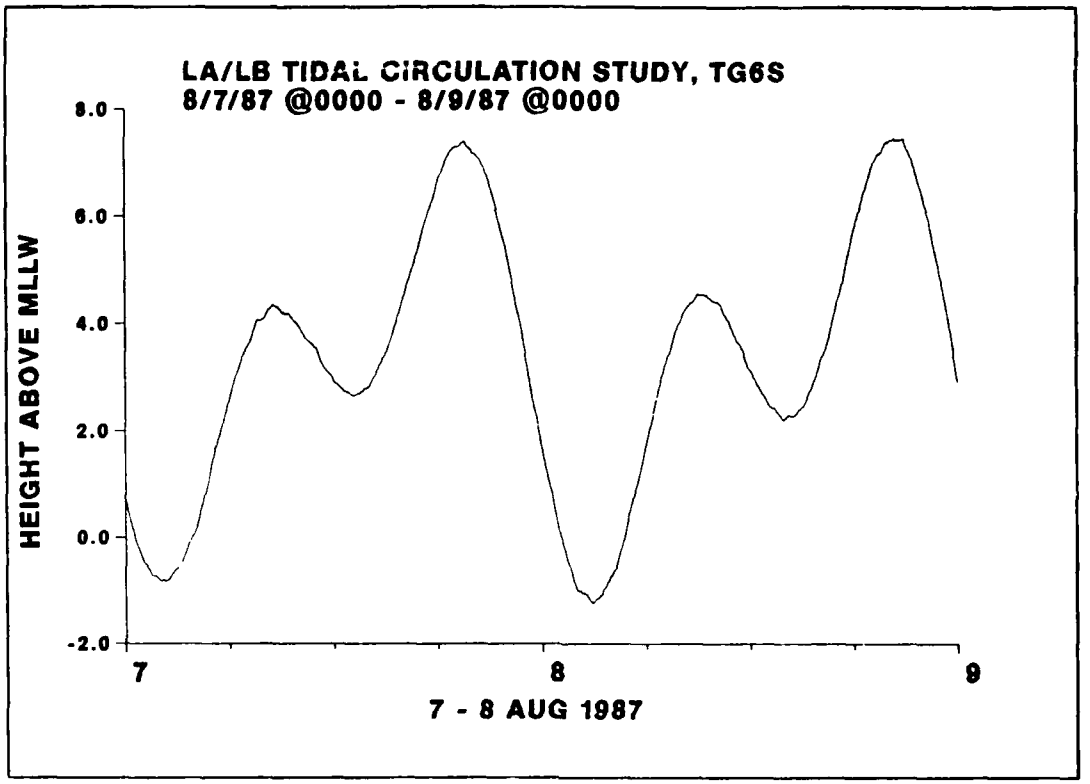
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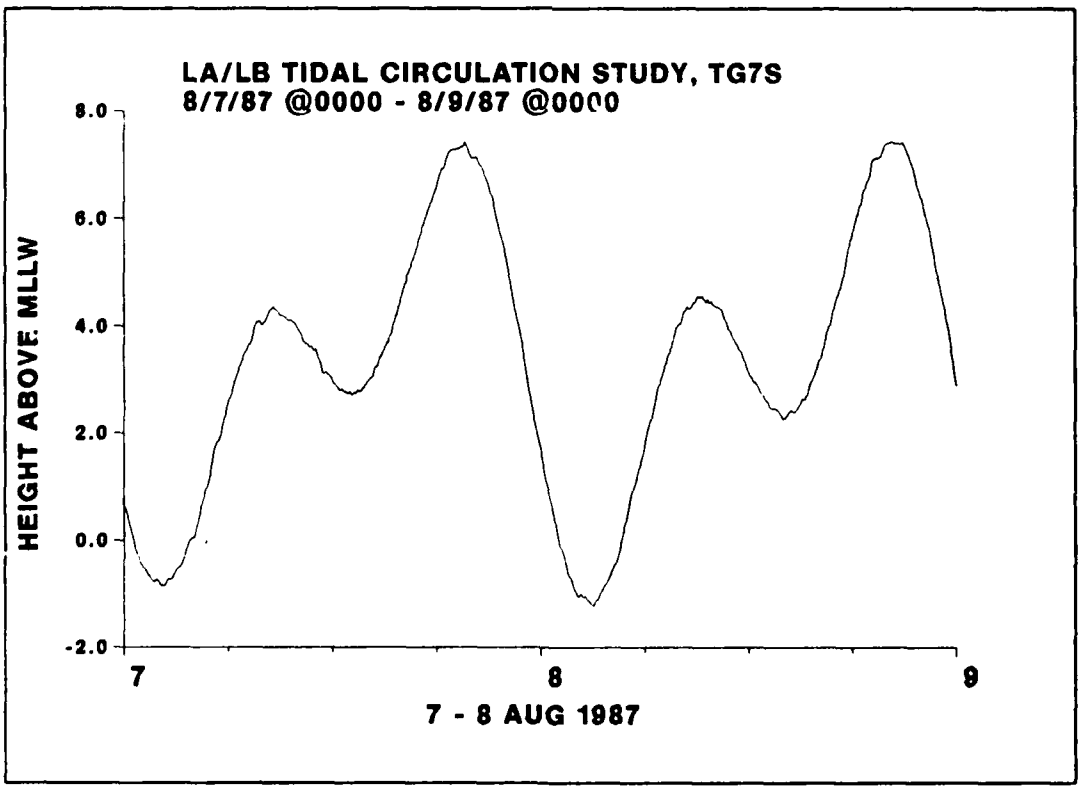
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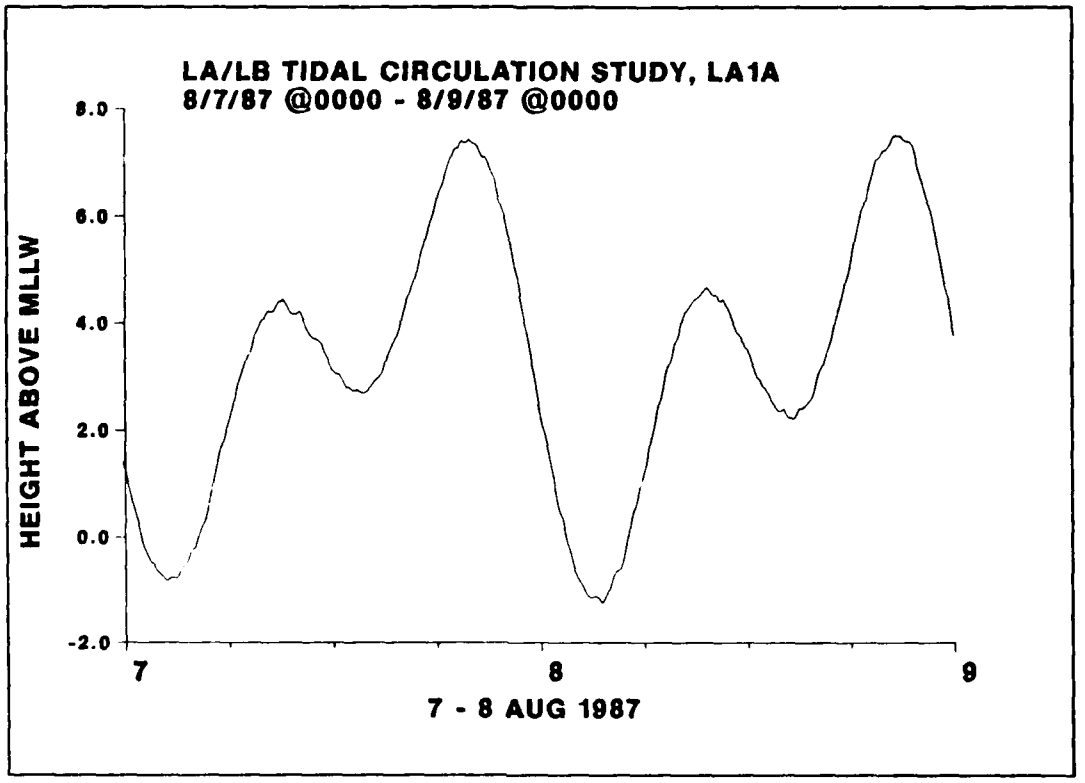
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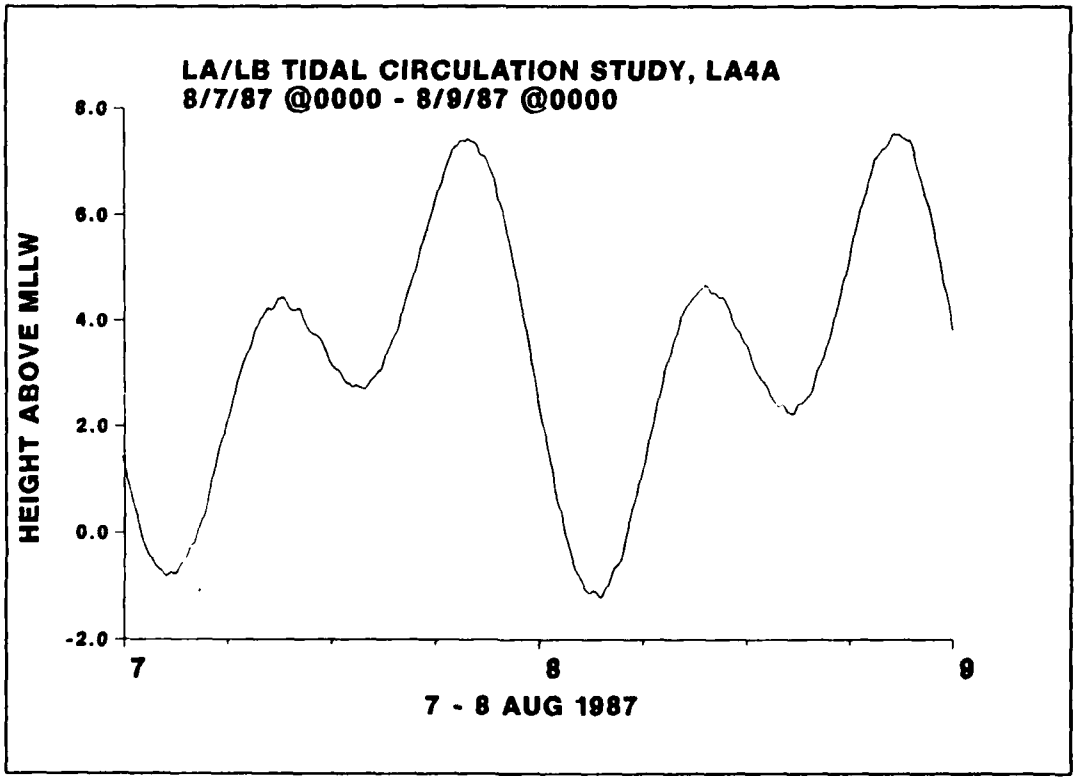
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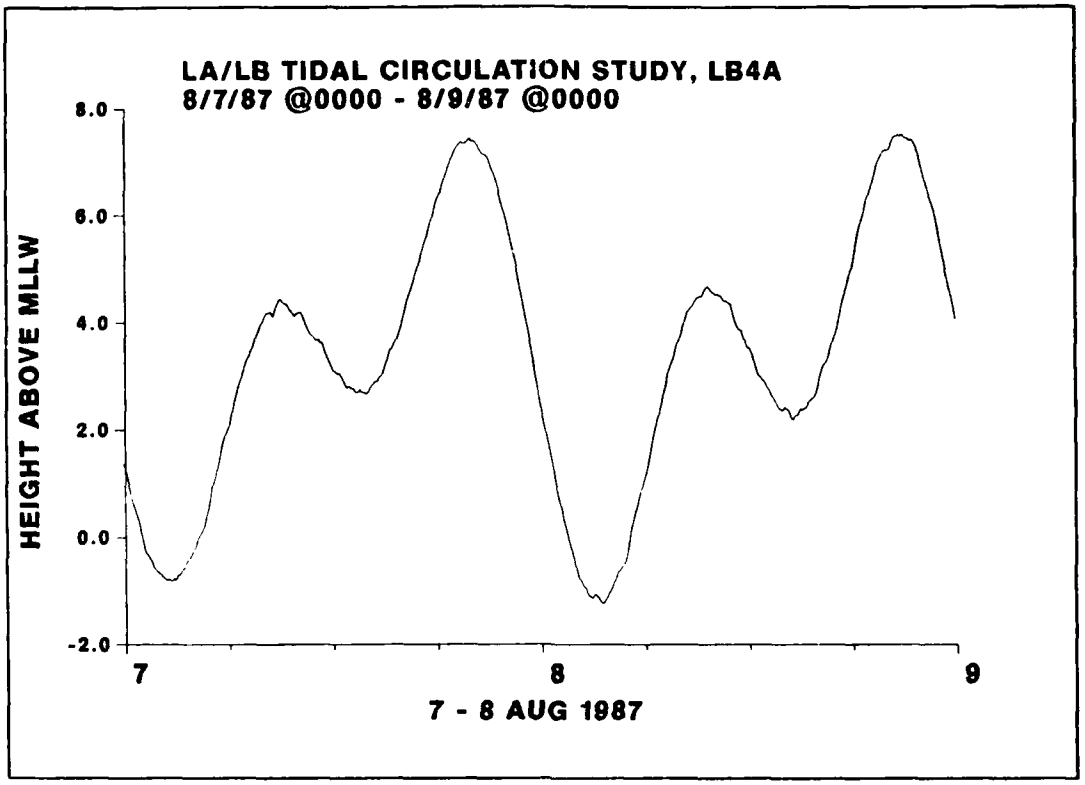
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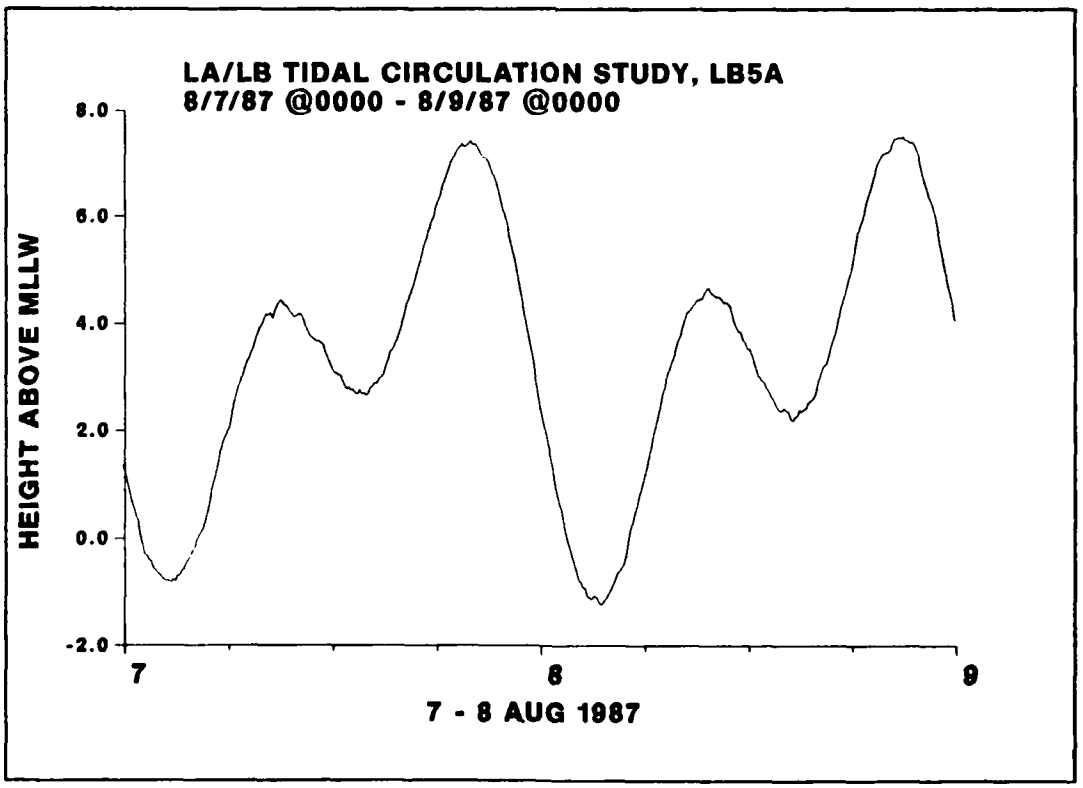
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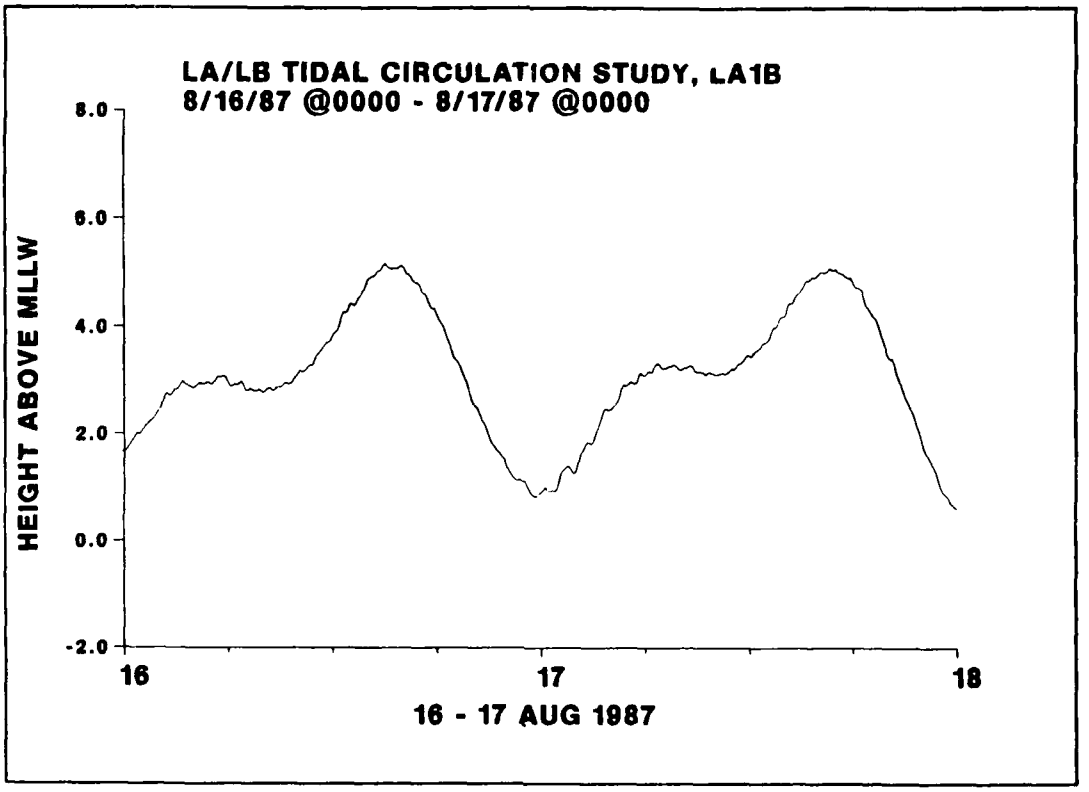
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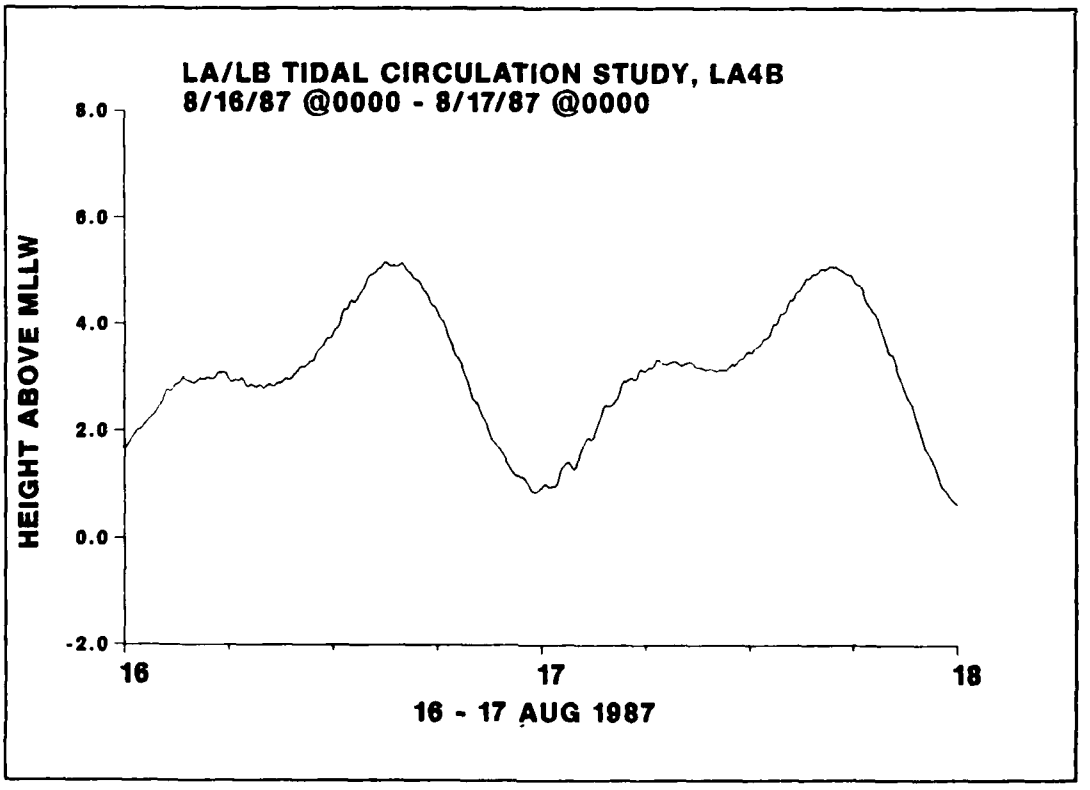
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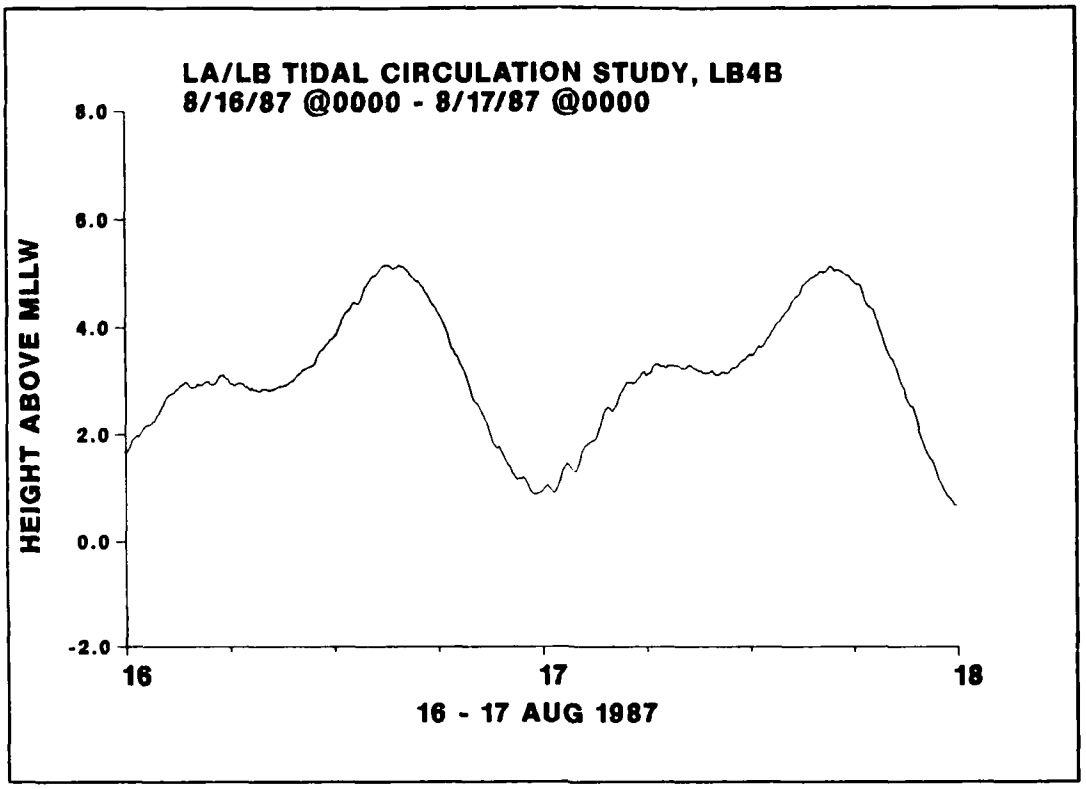
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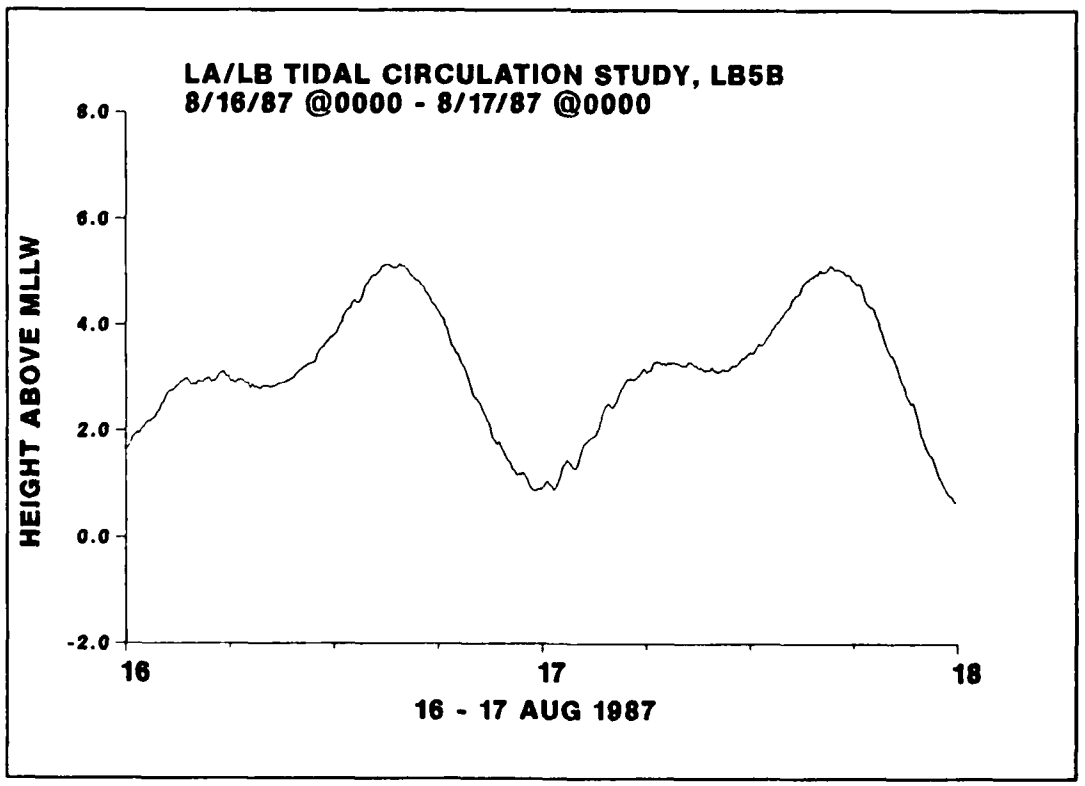
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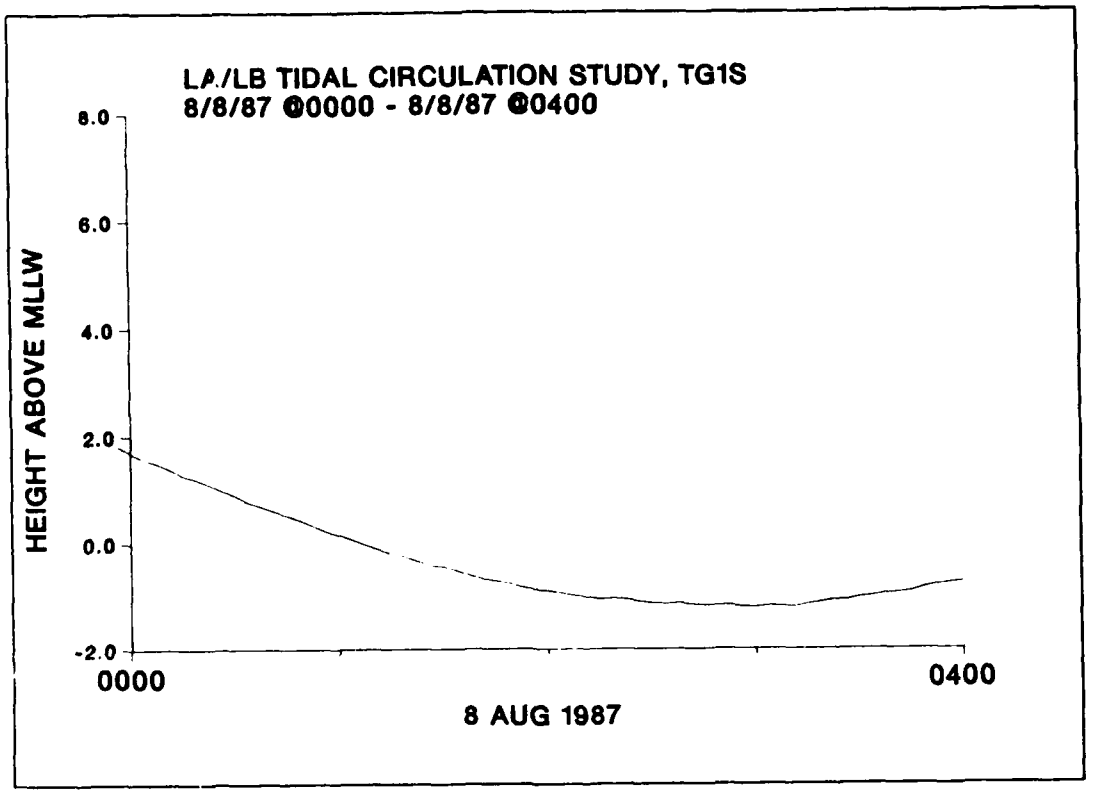
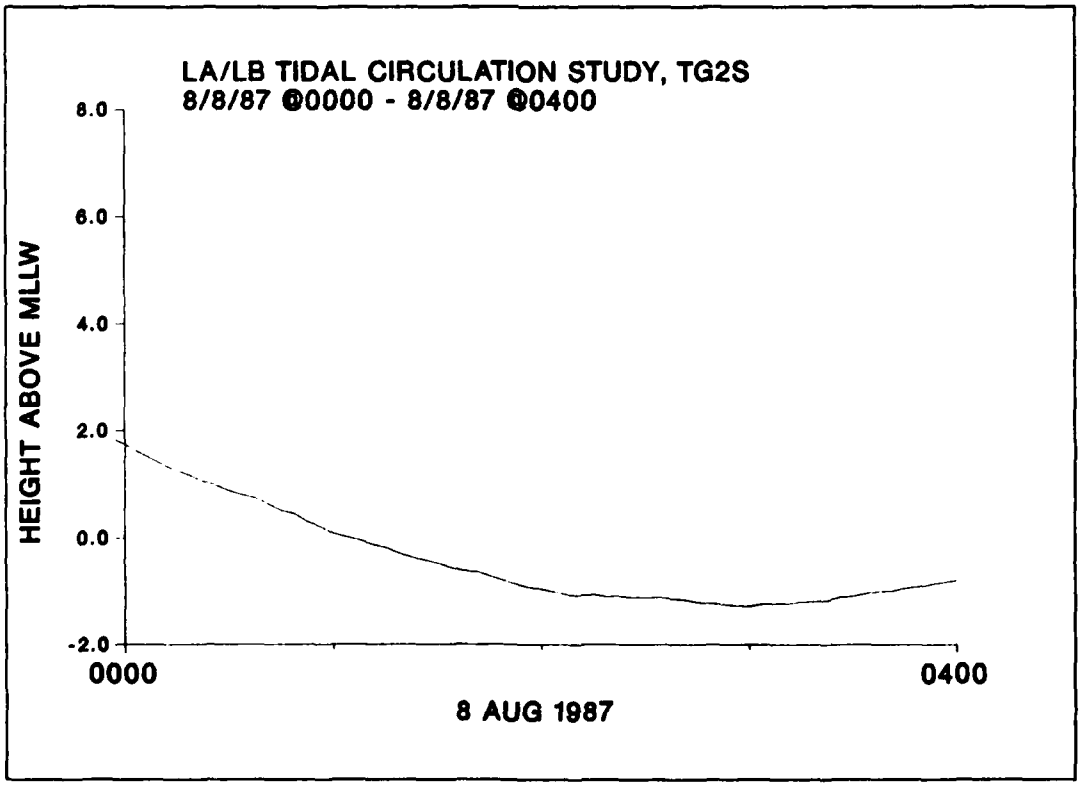
16 - 17 AUG 1987


LA/LB TIDAL CIRCULATION STUDY, TG1S
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY, TG2S
8/8/87 @0000 - 8/8/87 @0400
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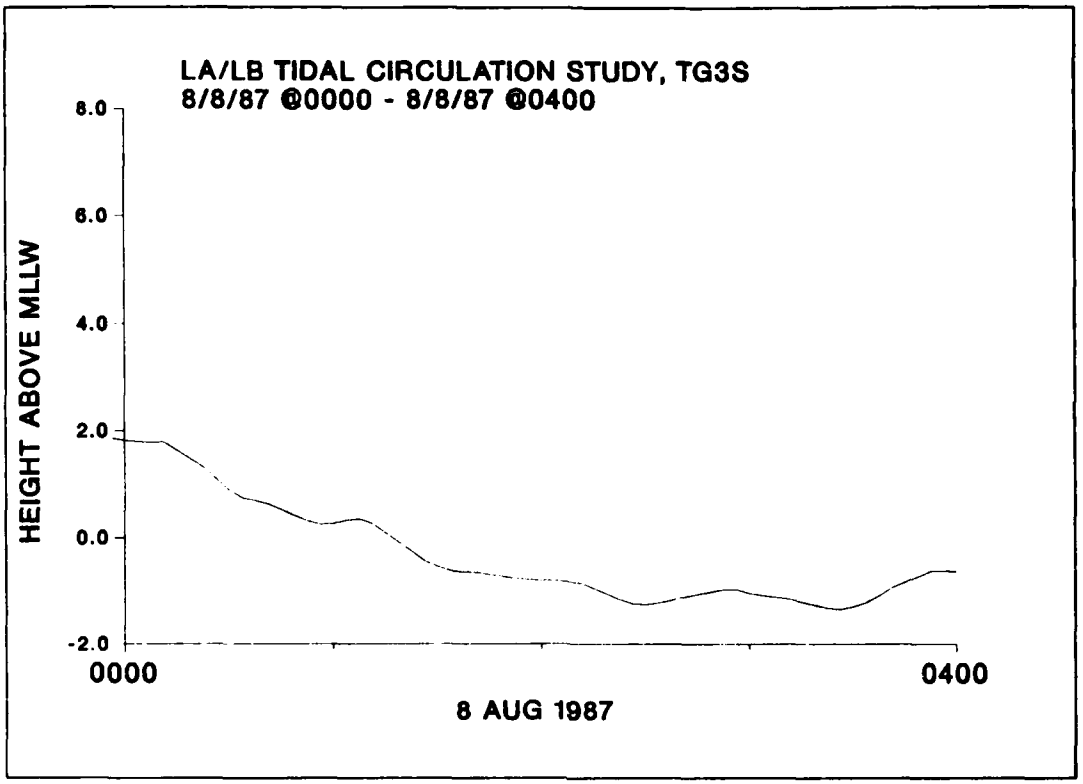
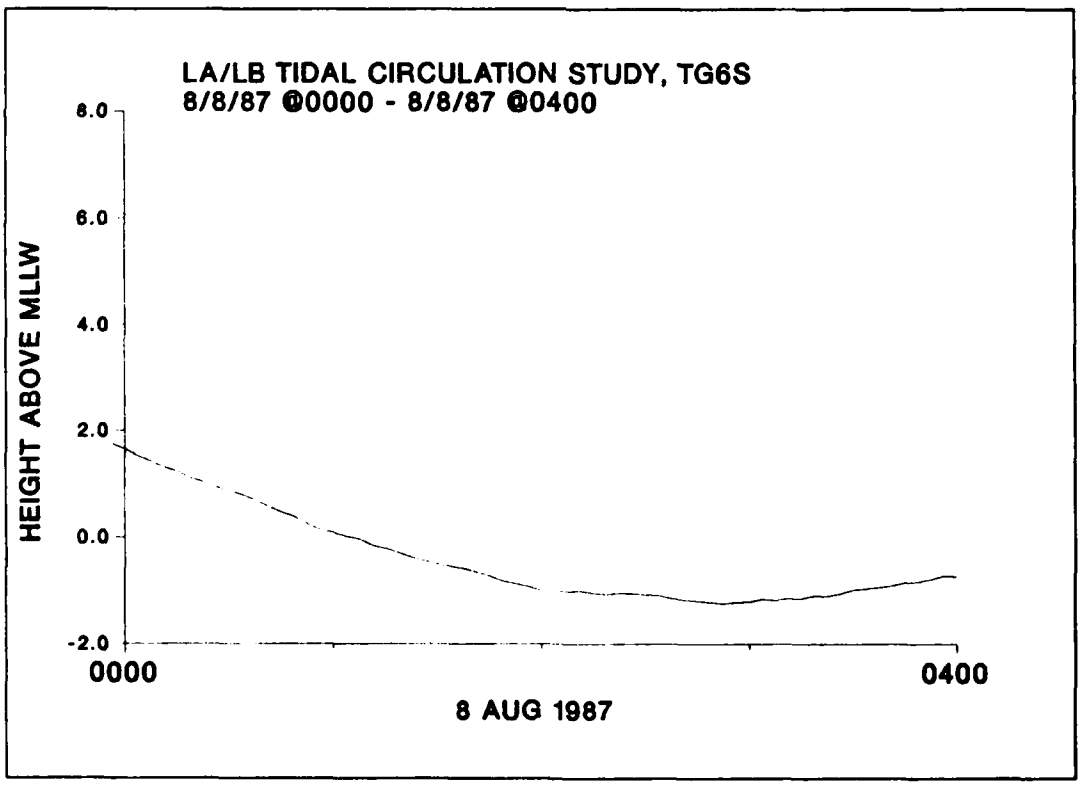
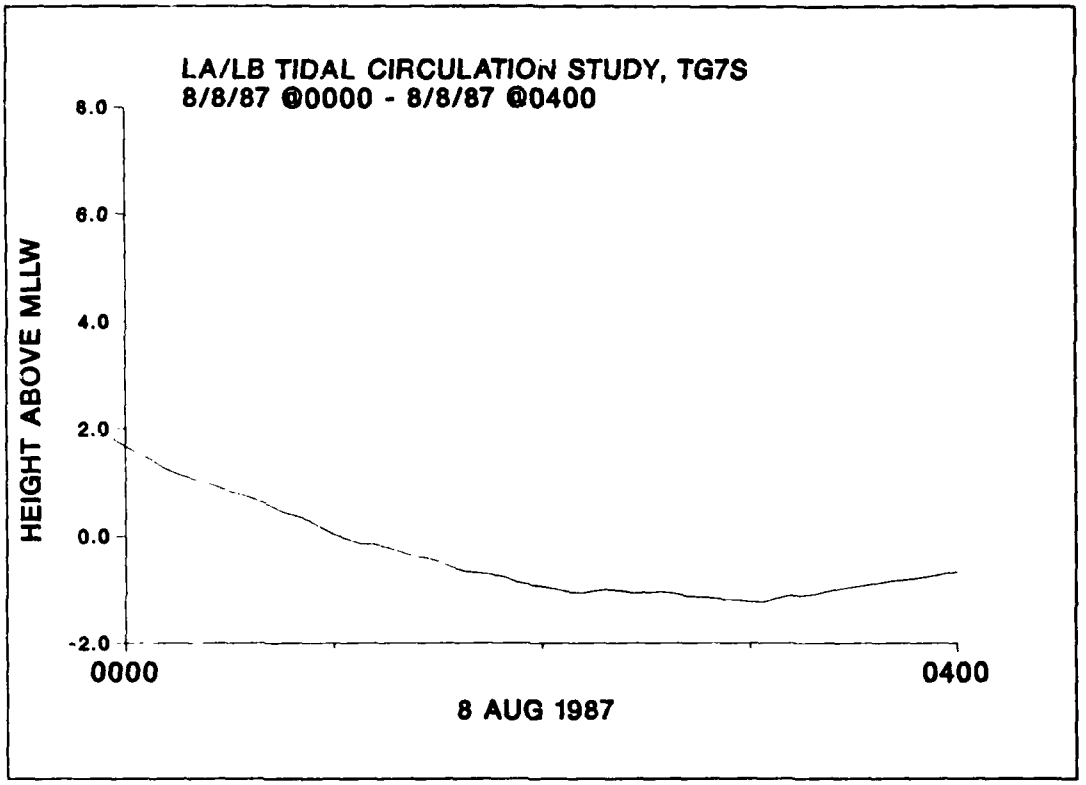
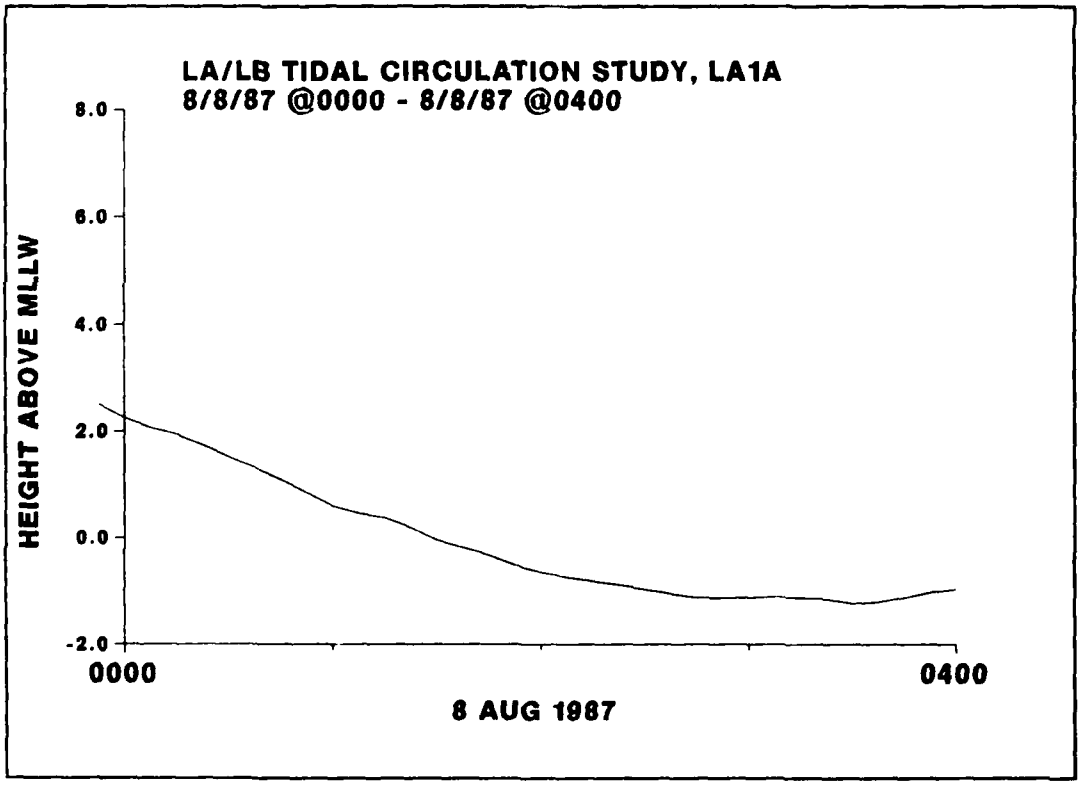
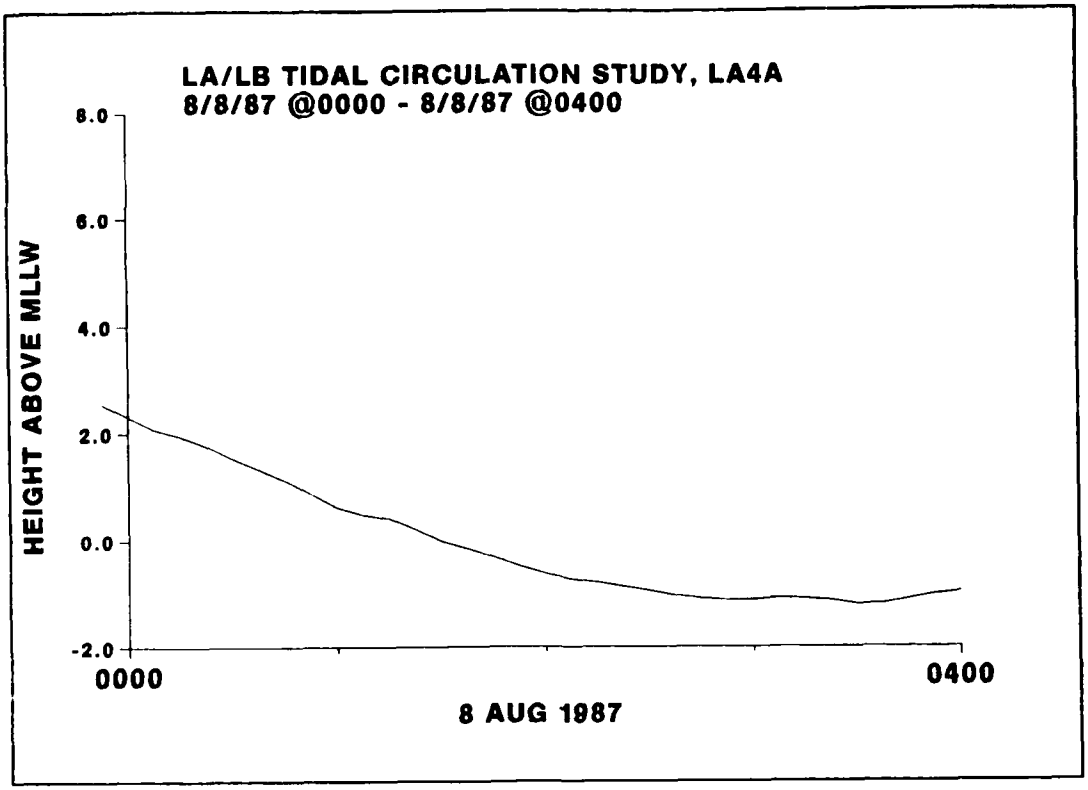
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987

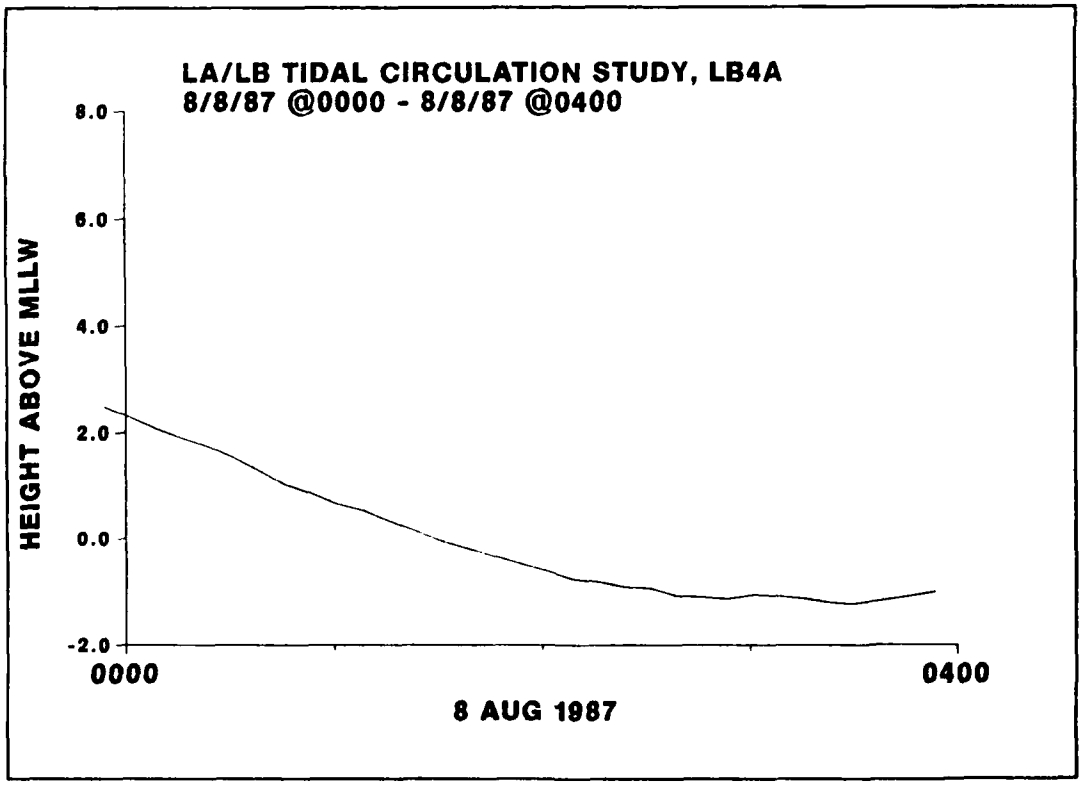

LA/LB TIDAL CIRCULATION STUDY, TG3S
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987

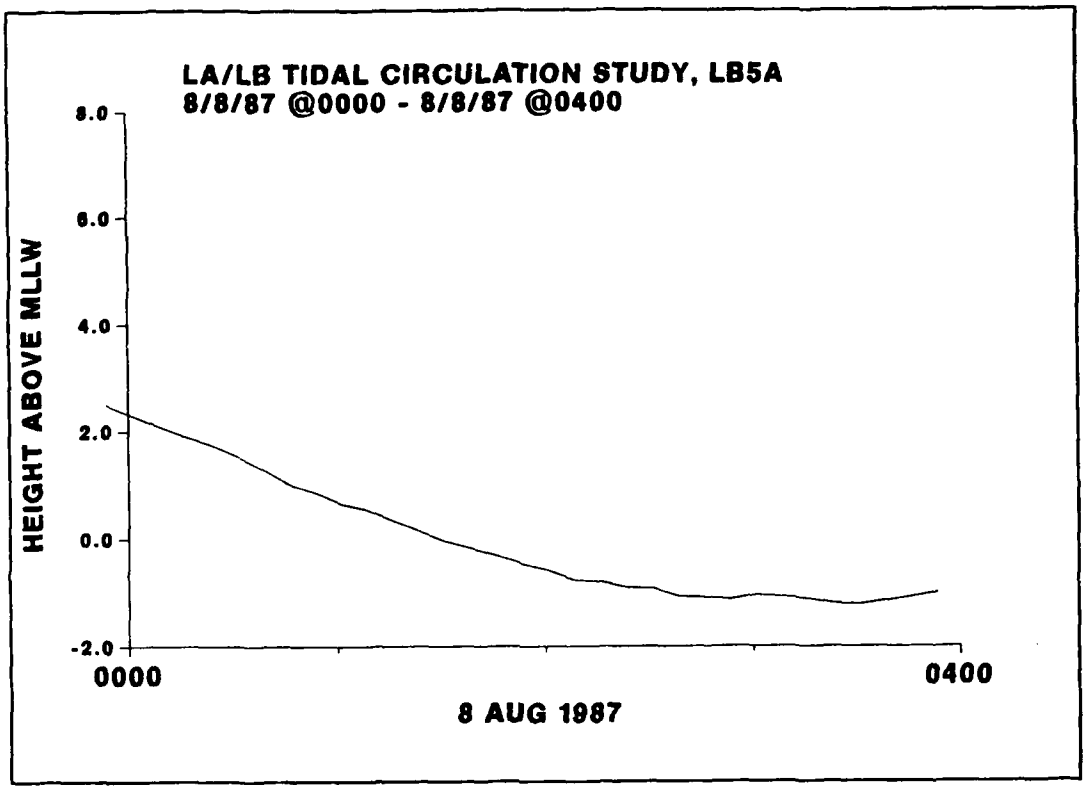

LA/LB TIDAL CIRCULATION STUDY, TG6S
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987

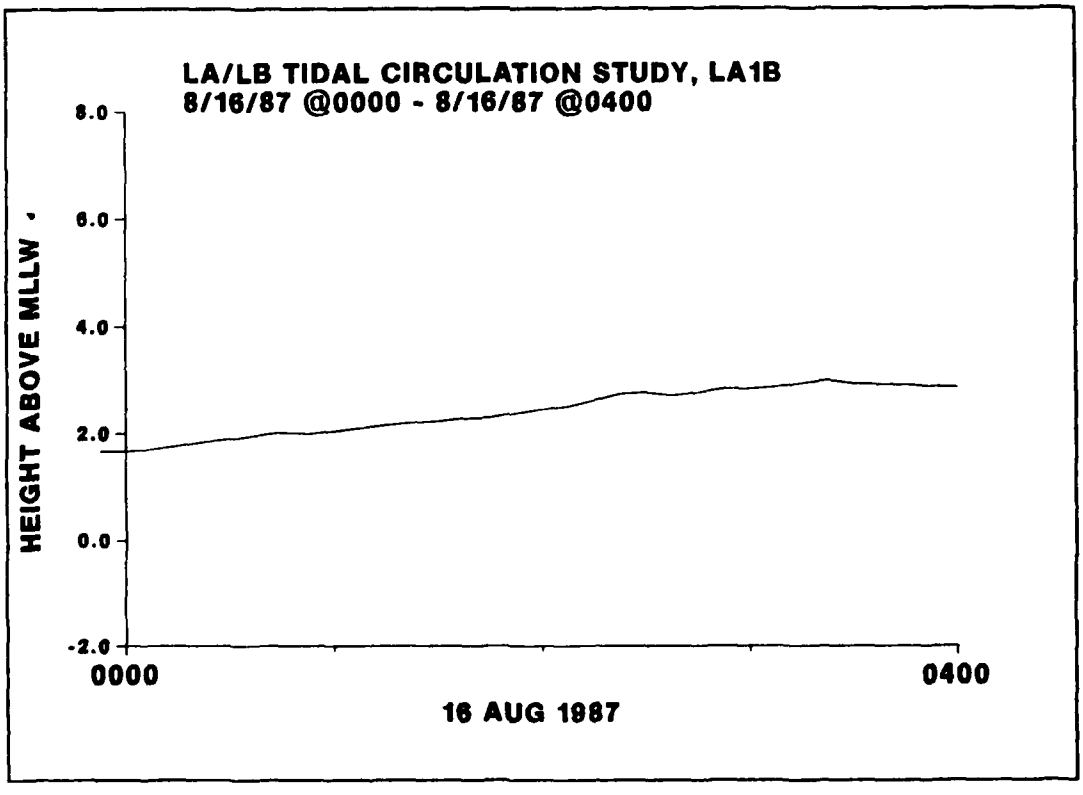

LA/LB TIDAL CIRCULATION STUDY, TG7S
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987

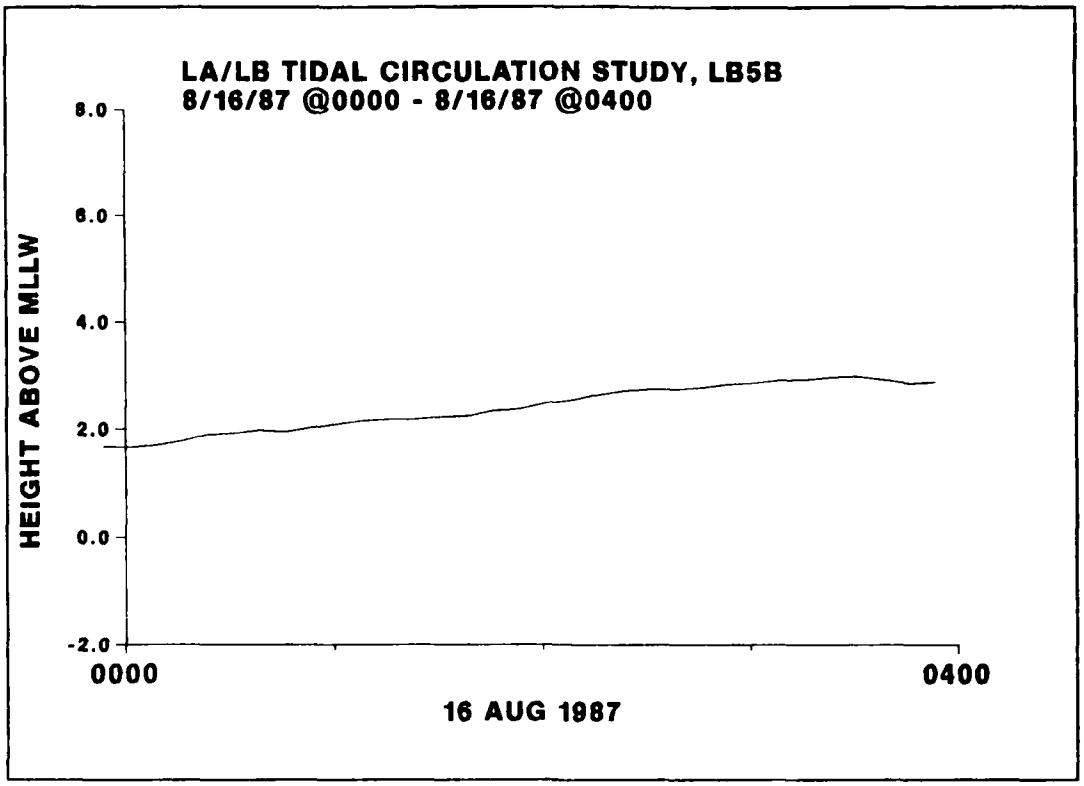

LA/LB TIDAL CIRCULATION STUDY, LA1A
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987

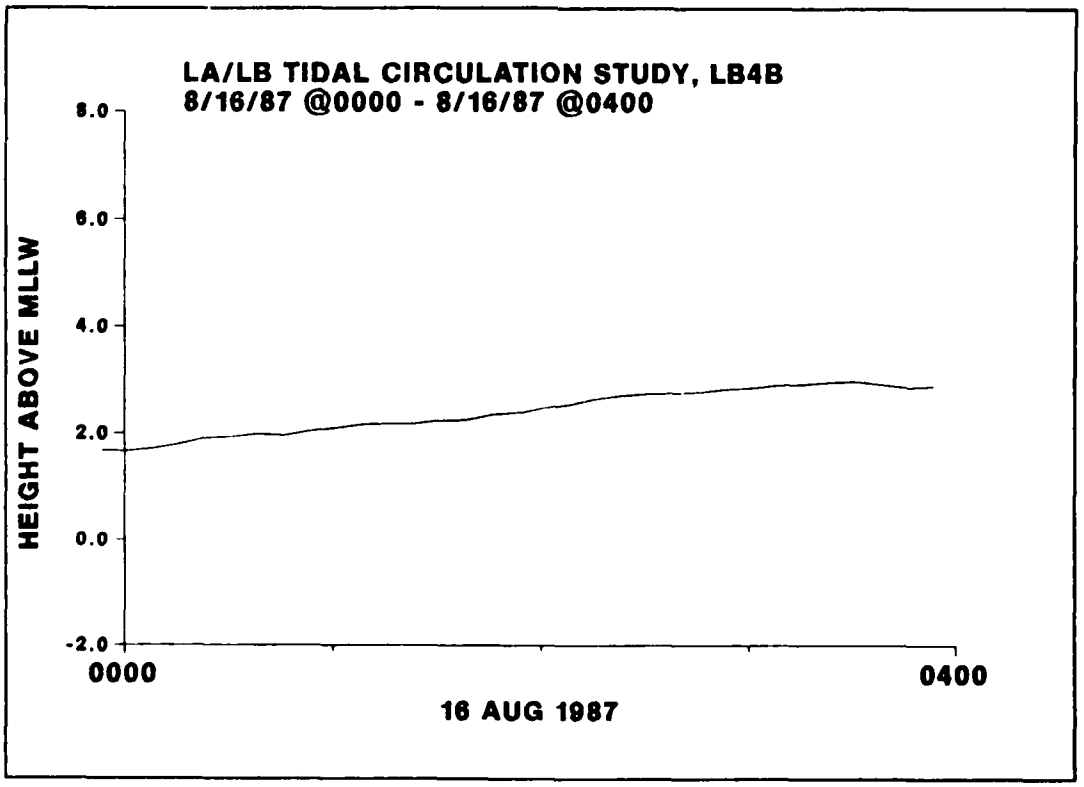

LA/LB TIDAL CIRCULATION STUDY, LA4A
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987

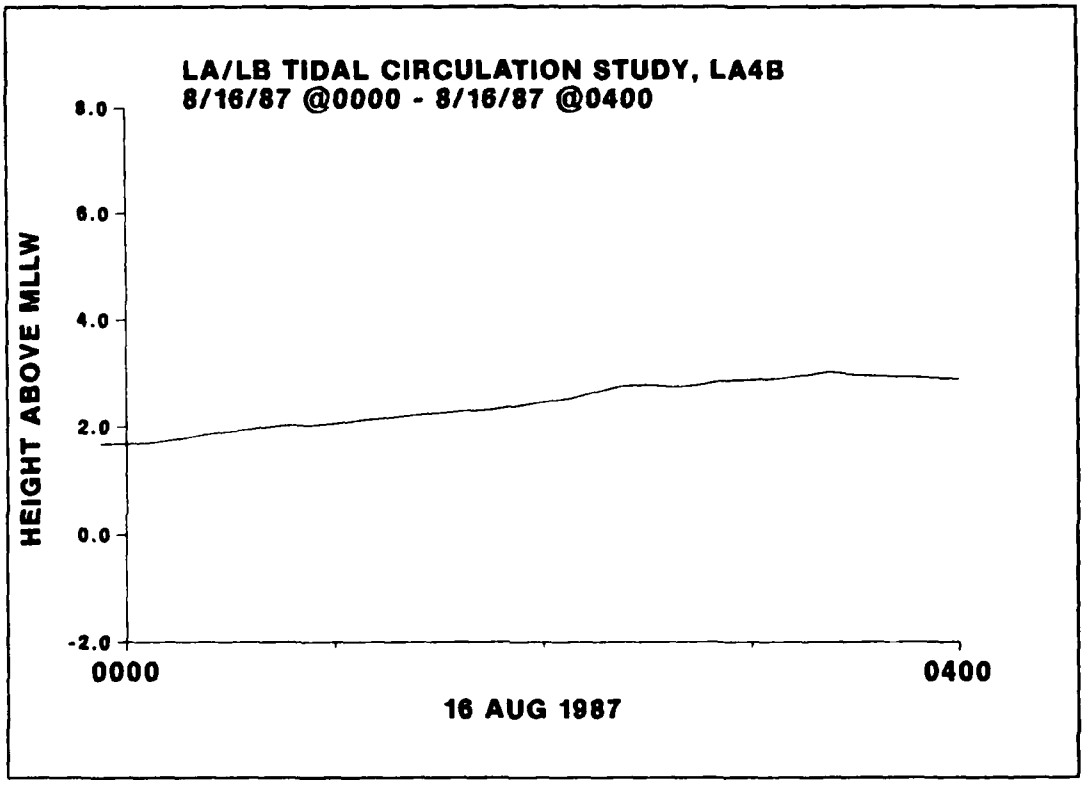

LA/LB TIDAL CIRCULATION STUDY, LB4A
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY, LB5A
8/8/87 @0000 - 8/8/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY, LA1B
8/16/87 @0000 - 8/16/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
16 AUG 1987

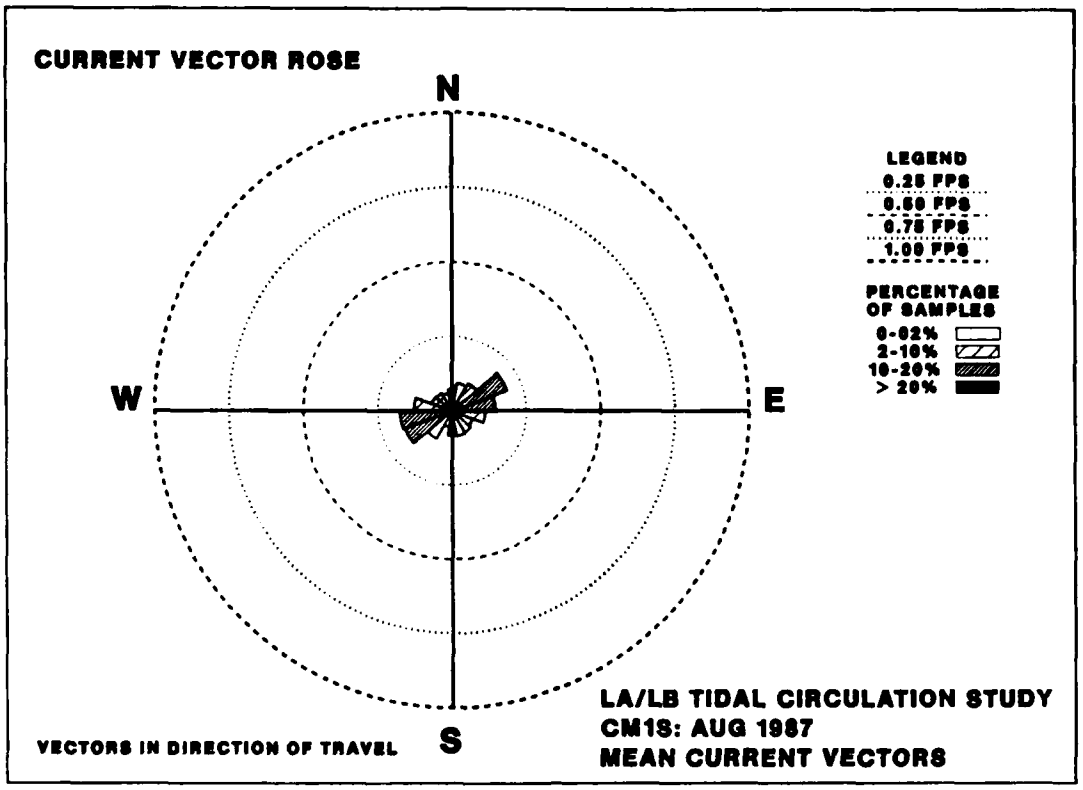

LA/LB TIDAL CIRCULATION STUDY, LB5B
8/16/87 @0000 - 8/16/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
16 AUG 1987

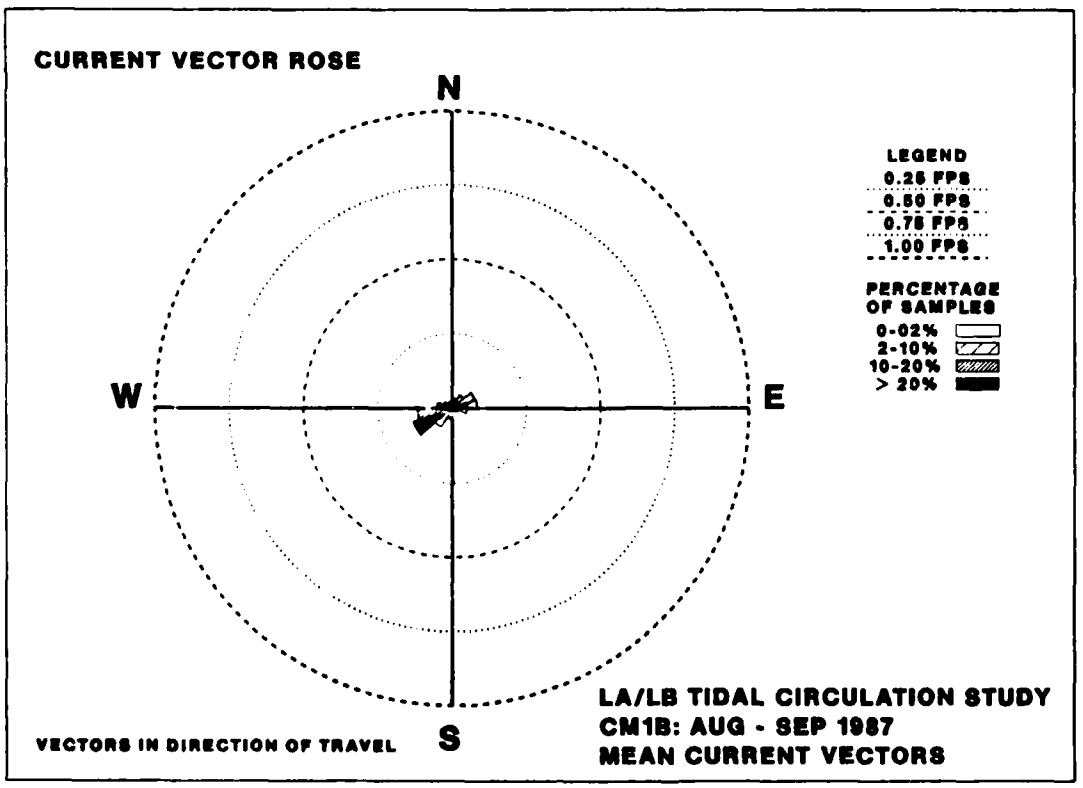

LA/LB TIDAL CIRCULATION STUDY, LB4B
8/16/87 @0000 - 8/16/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
16 AUG 1987

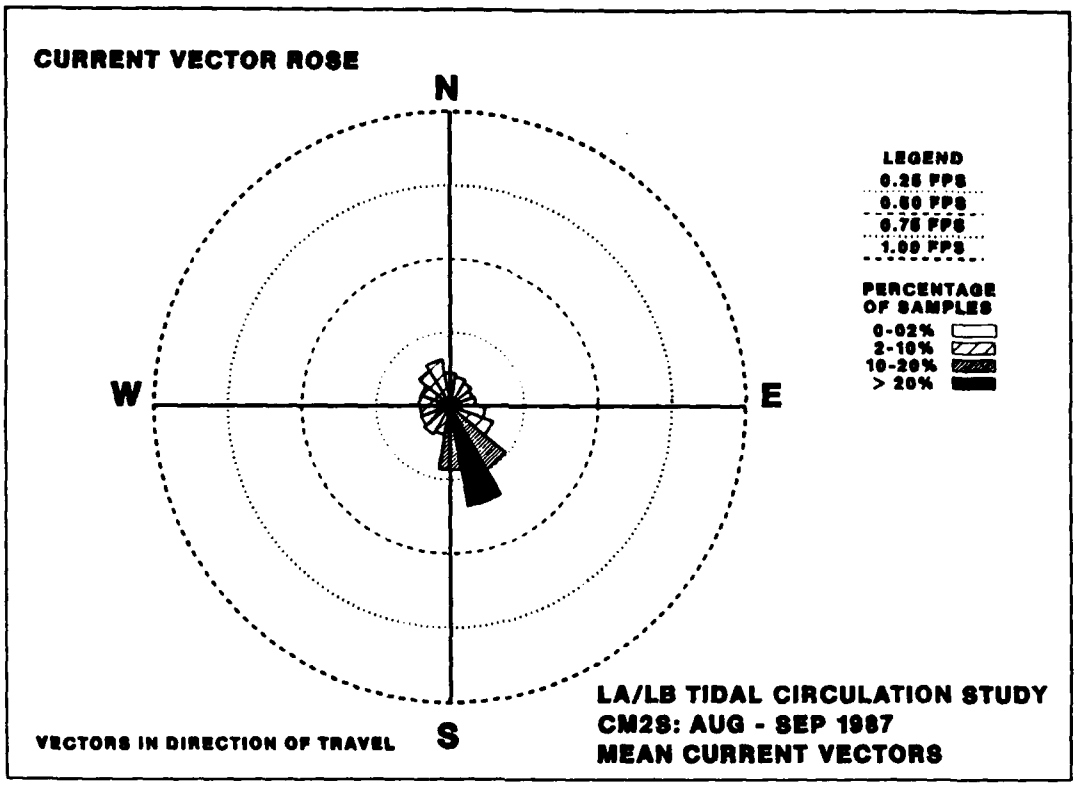

LA/LB TIDAL CIRCULATION STUDY, LA4B
8/16/87 @0000 - 8/16/87 @0400
HEIGHT ABOVE MLLW
8.0
6.0
4.0
2.0
0.0
-2.0
0000
0400
16 AUG 1987

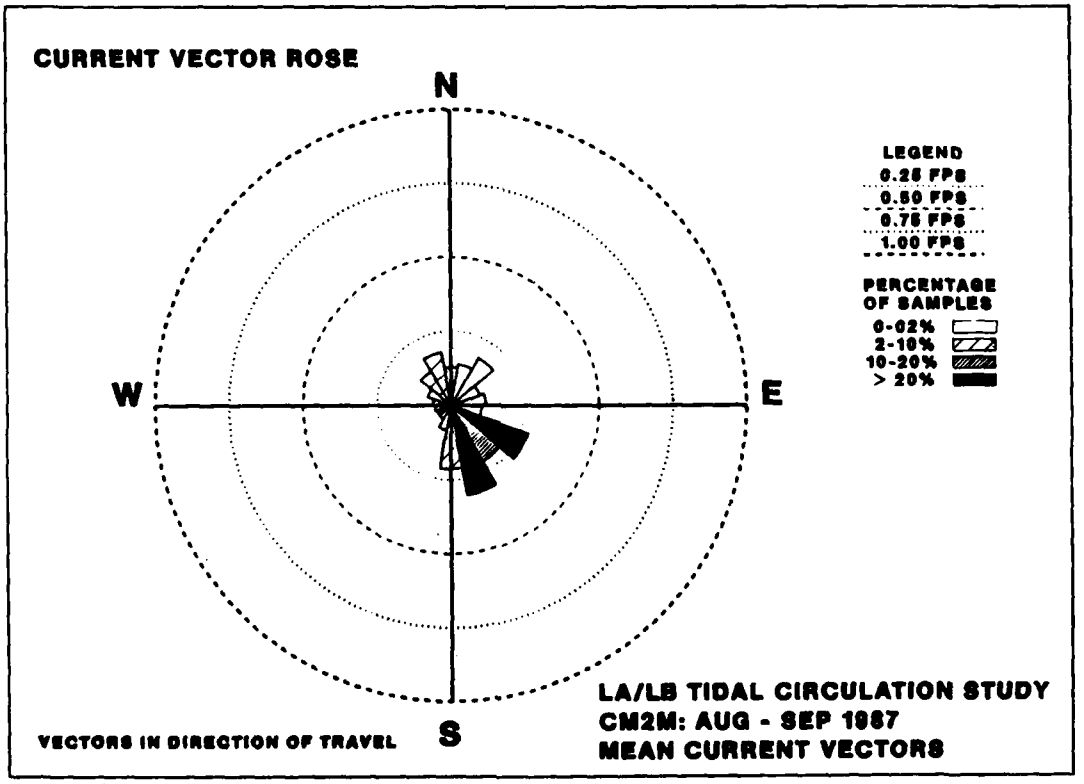
APPENDIX E: CURRENT VECTOR ROSE PLOTS

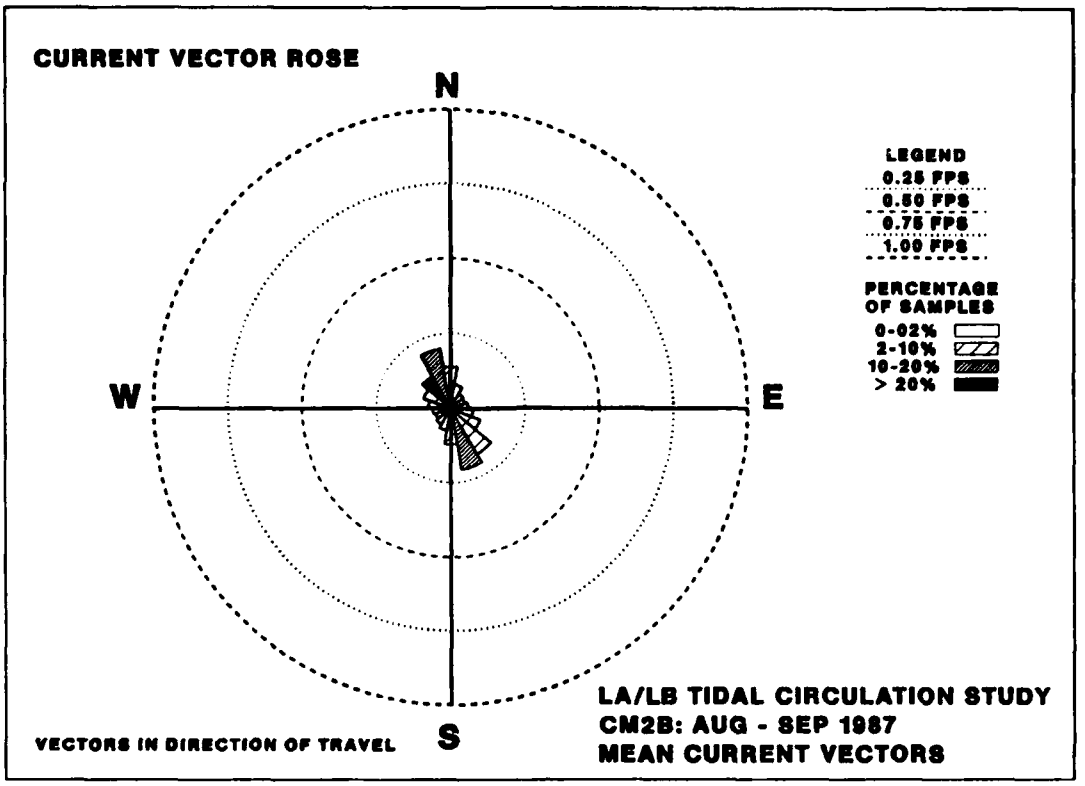
This appendix contains rose plots of current vector time series. Time series are suffixed with S, M, and B, which stand for surface, middepth, and bottom, respectively.

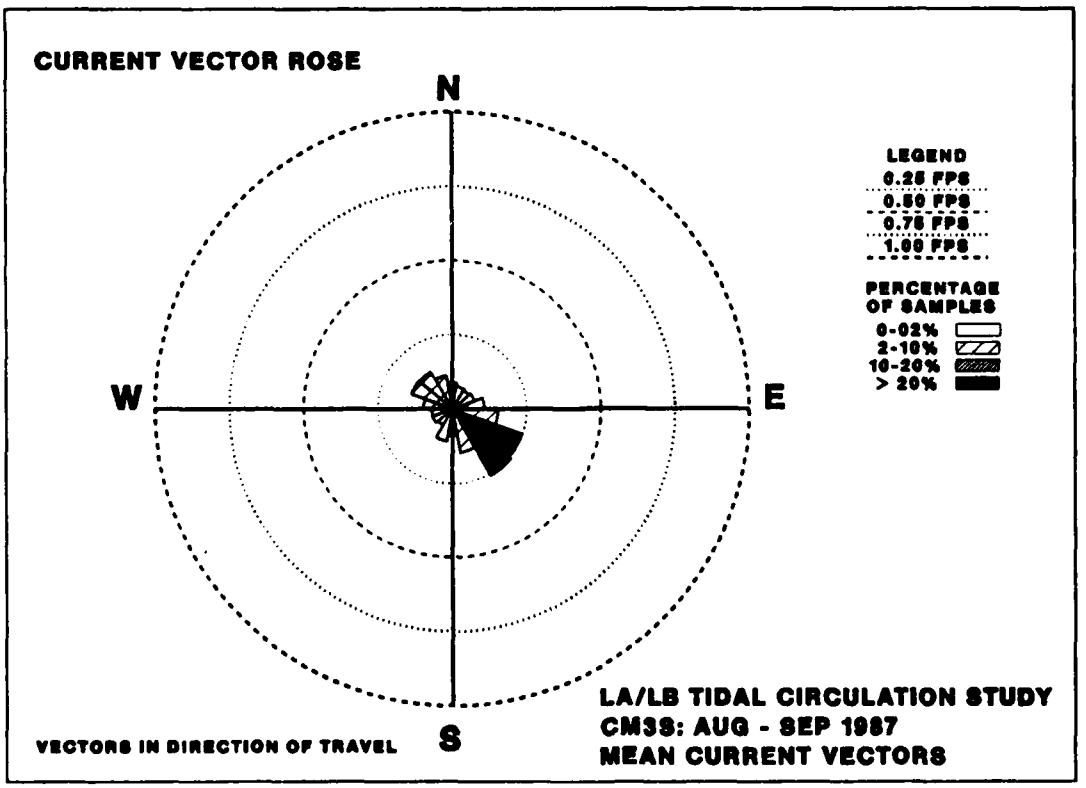

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM1S: AUG 1987
MEAN CURRENT VECTORS

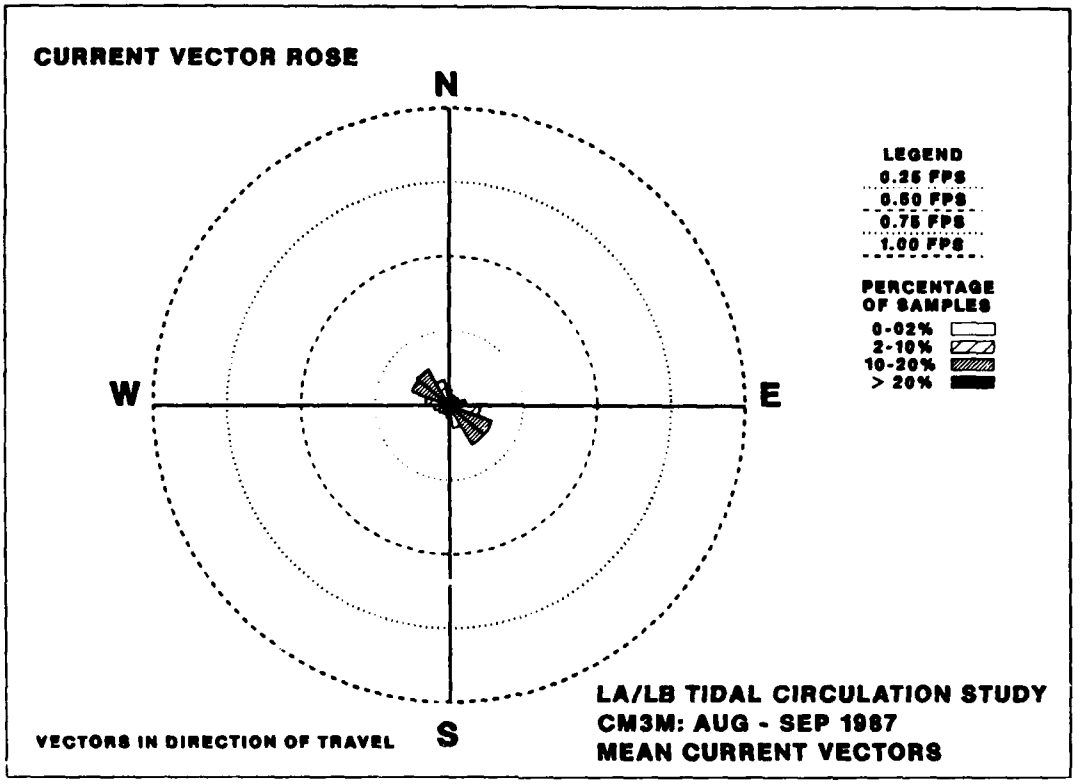

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM1B: AUG - SEP 1987
MEAN CURRENT VECTORS

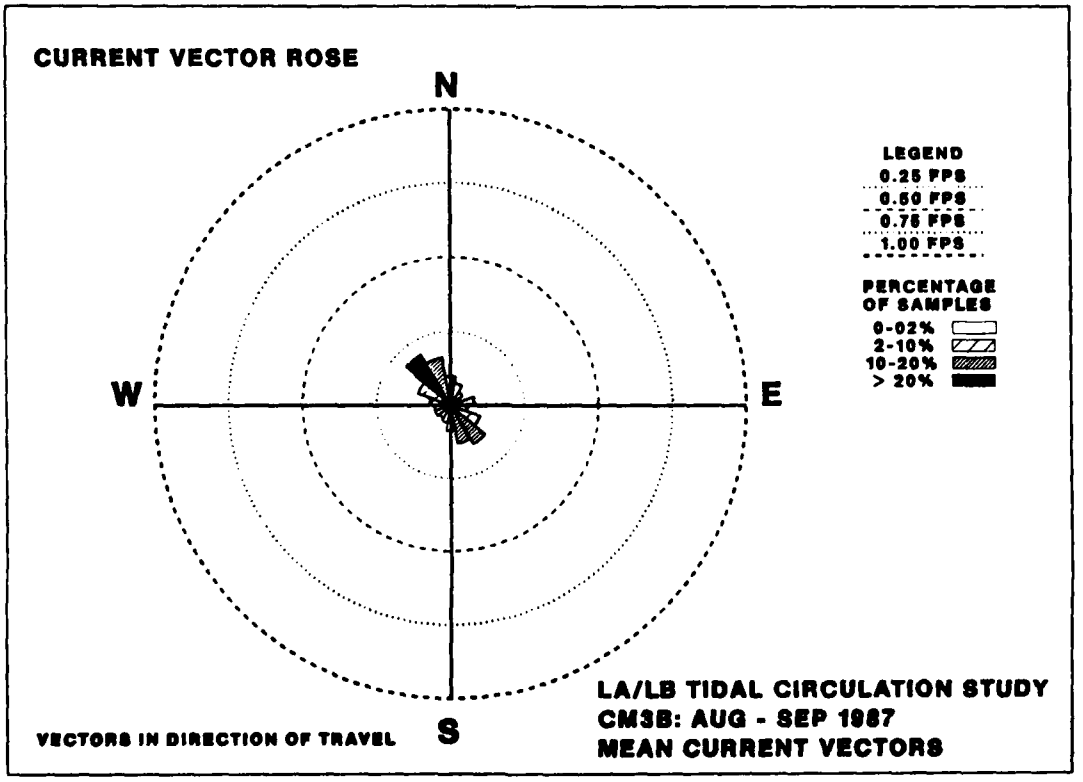

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2S: AUG - SEP 1987
MEAN CURRENT VECTORS

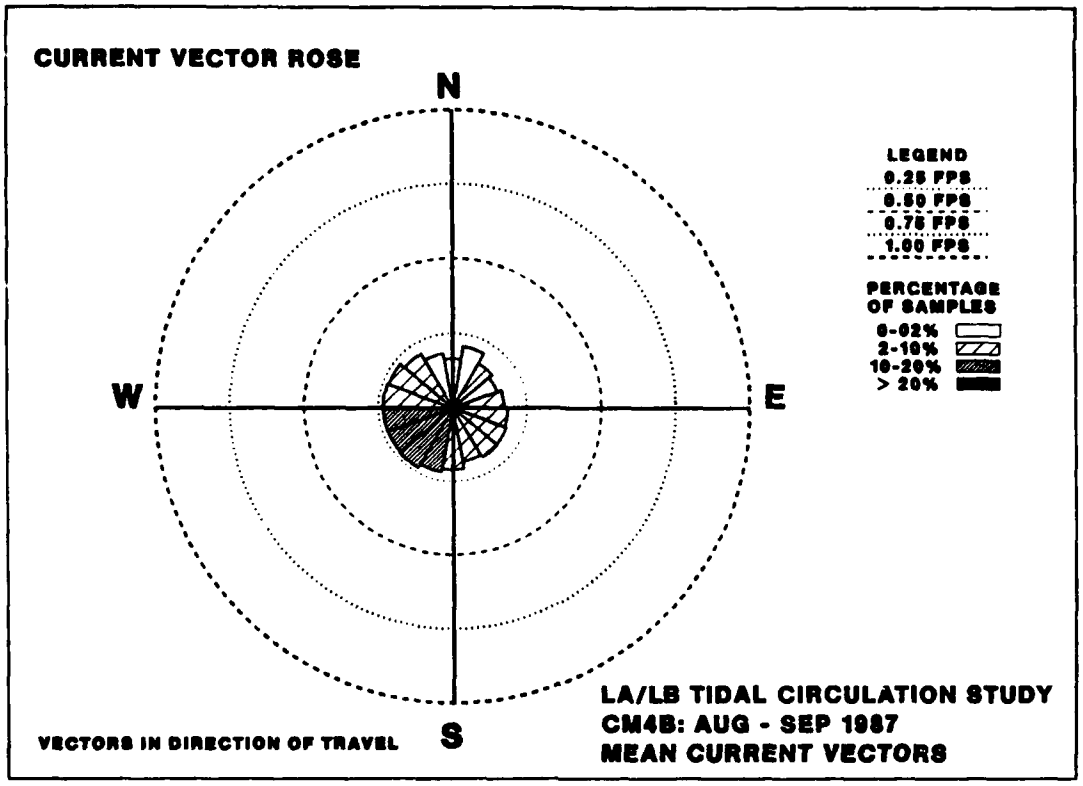

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2M: AUG - SEP 1987
MEAN CURRENT VECTORS

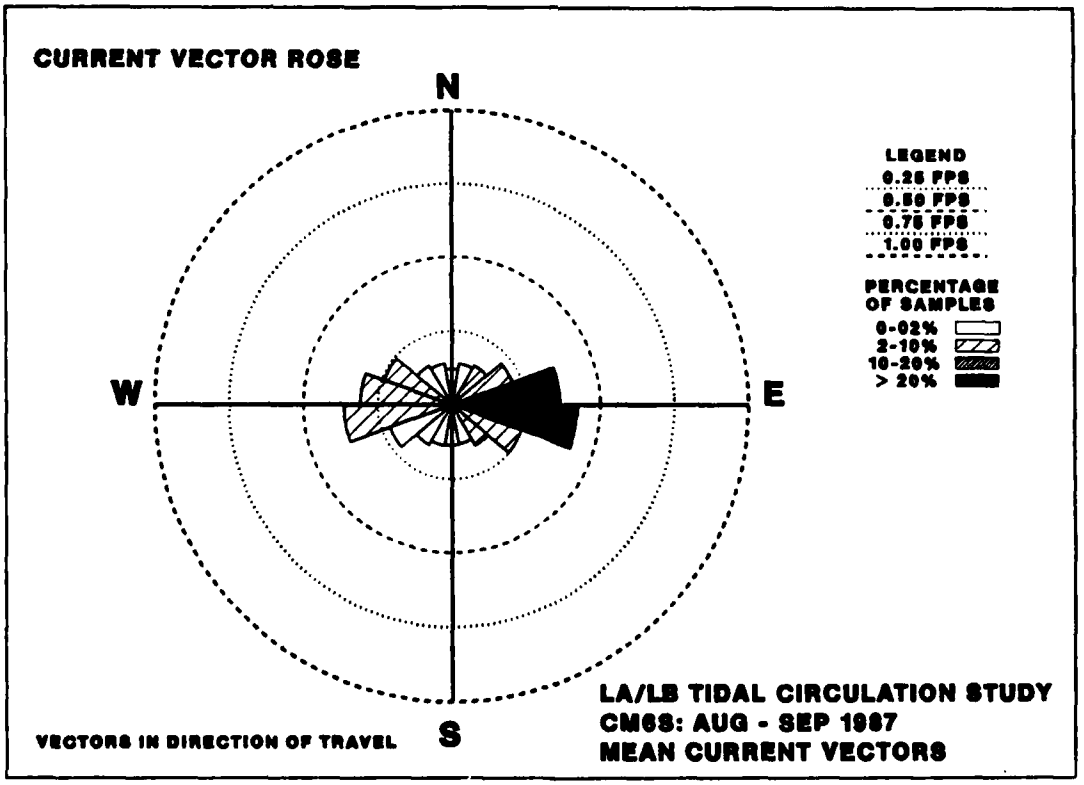

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2B: AUG - SEP 1987
MEAN CURRENT VECTORS

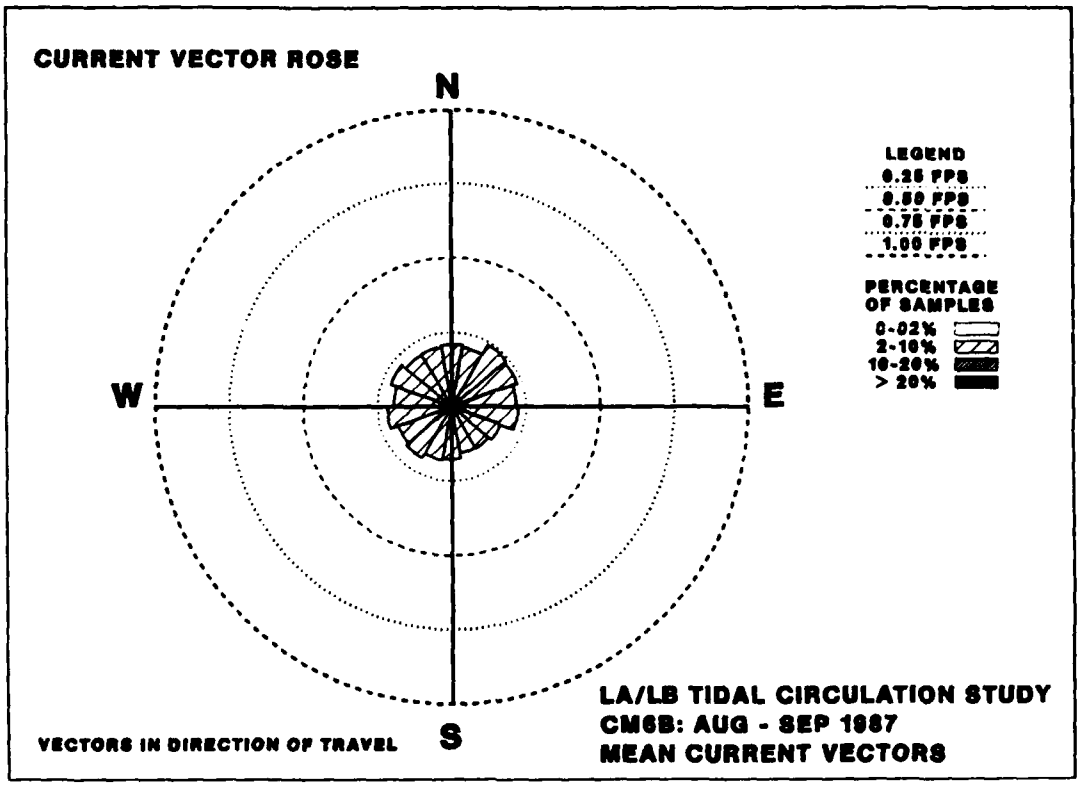

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3S: AUG - SEP 1987
MEAN CURRENT VECTORS

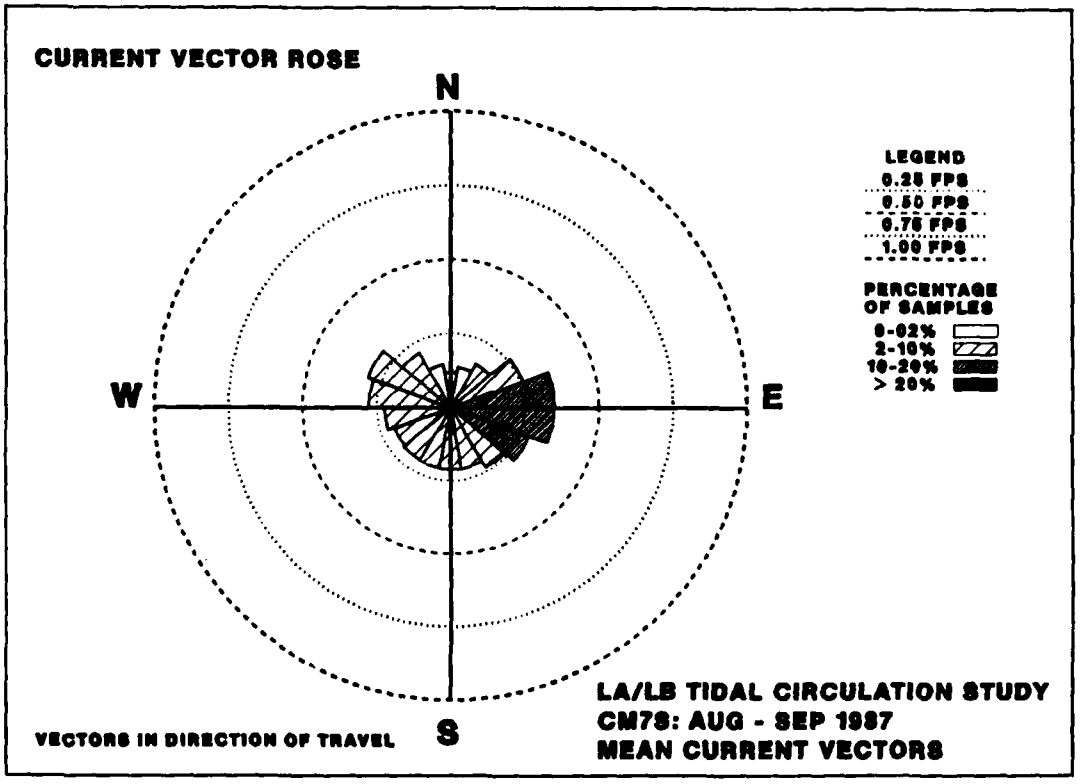

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3M: AUG - SEP 1987
MEAN CURRENT VECTORS

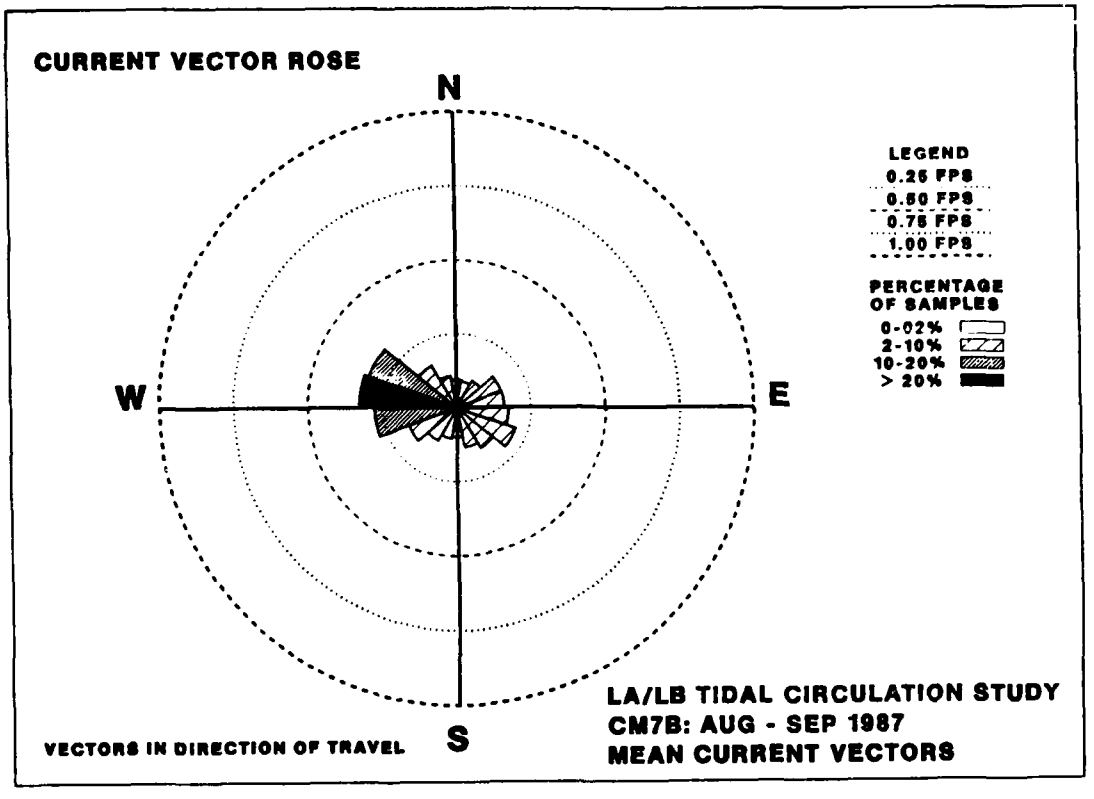

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3B: AUG - SEP 1987
MEAN CURRENT VECTORS

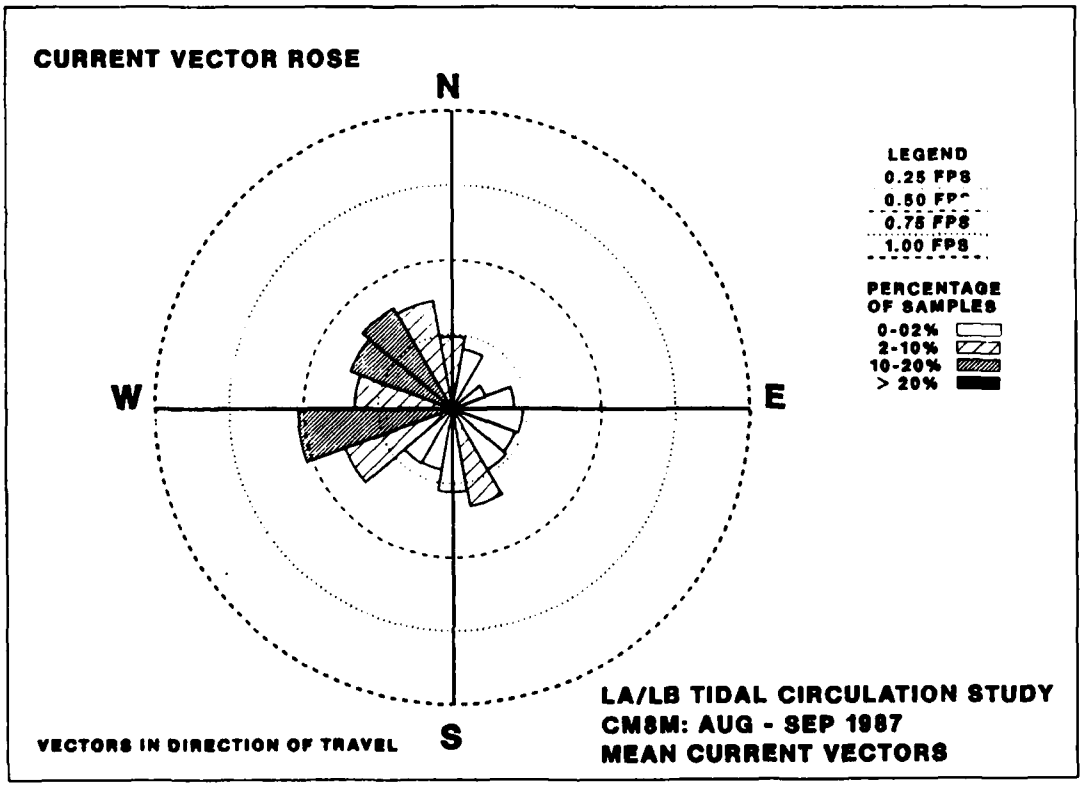

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM4B: AUG - SEP 1987
MEAN CURRENT VECTORS


CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM6S: AUG - SEP 1987
MEAN CURRENT VECTORS


CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM6B: AUG - SEP 1987
MEAN CURRENT VECTORS

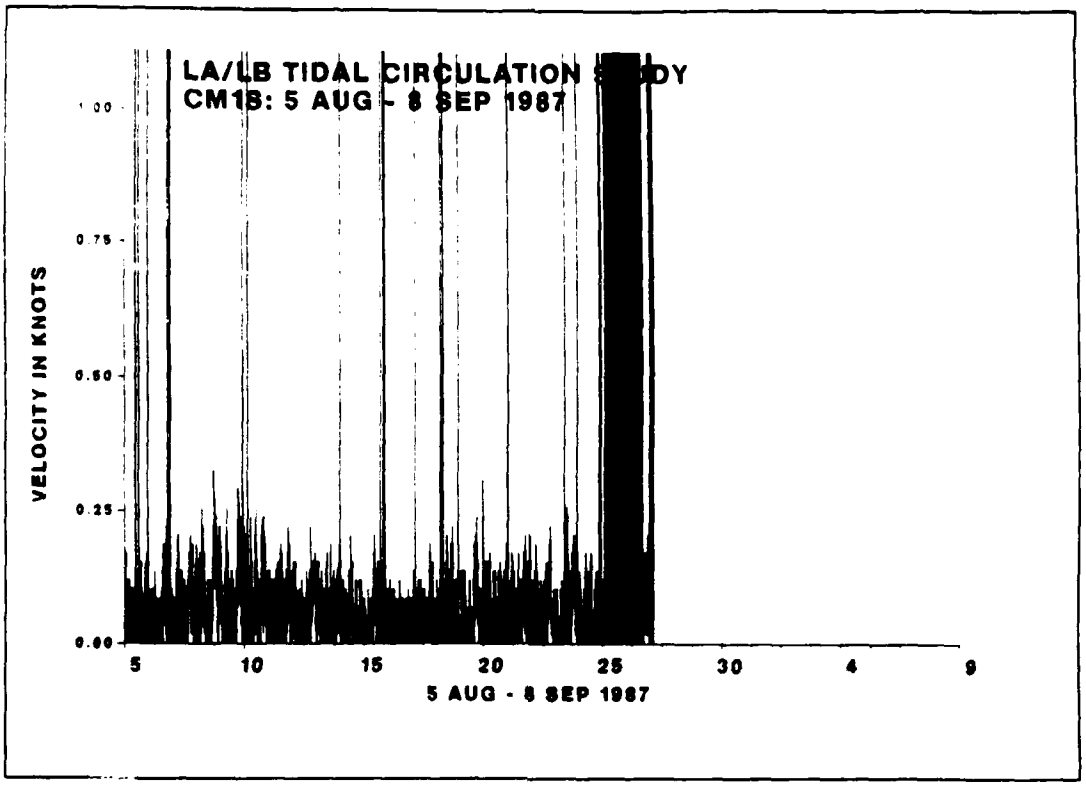

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM7S: AUG - SEP 1987
MEAN CURRENT VECTORS

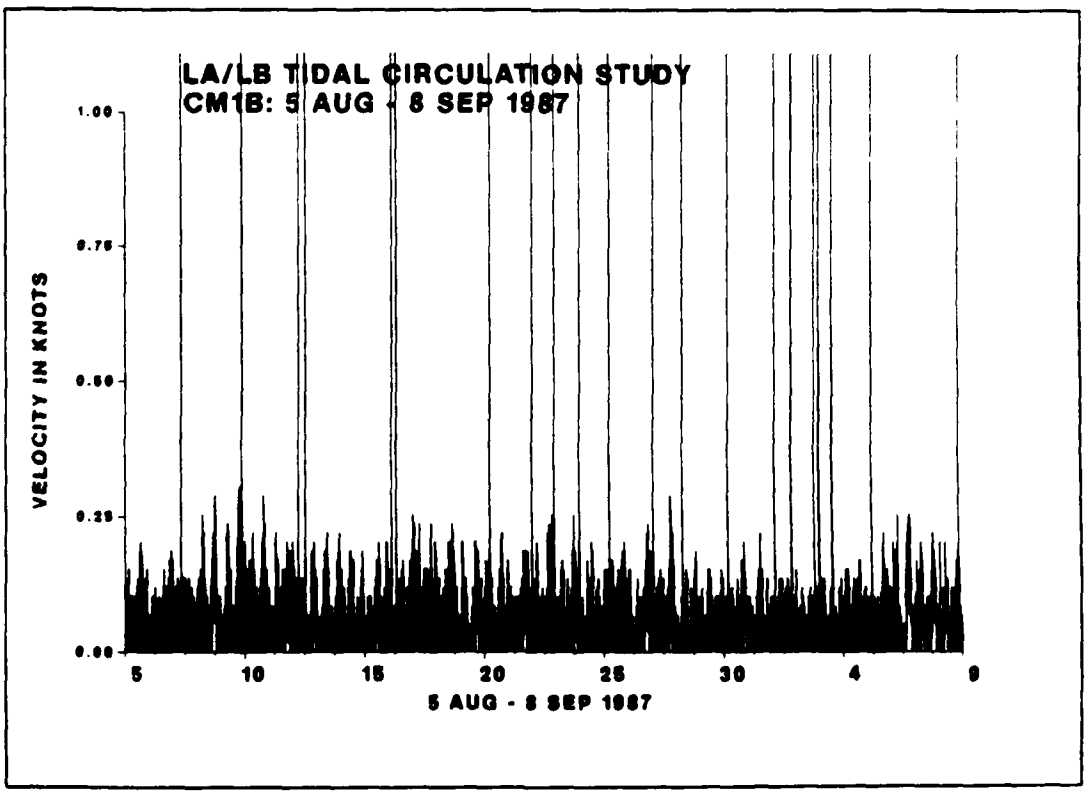

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM7B: AUG - SEP 1987
MEAN CURRENT VECTORS

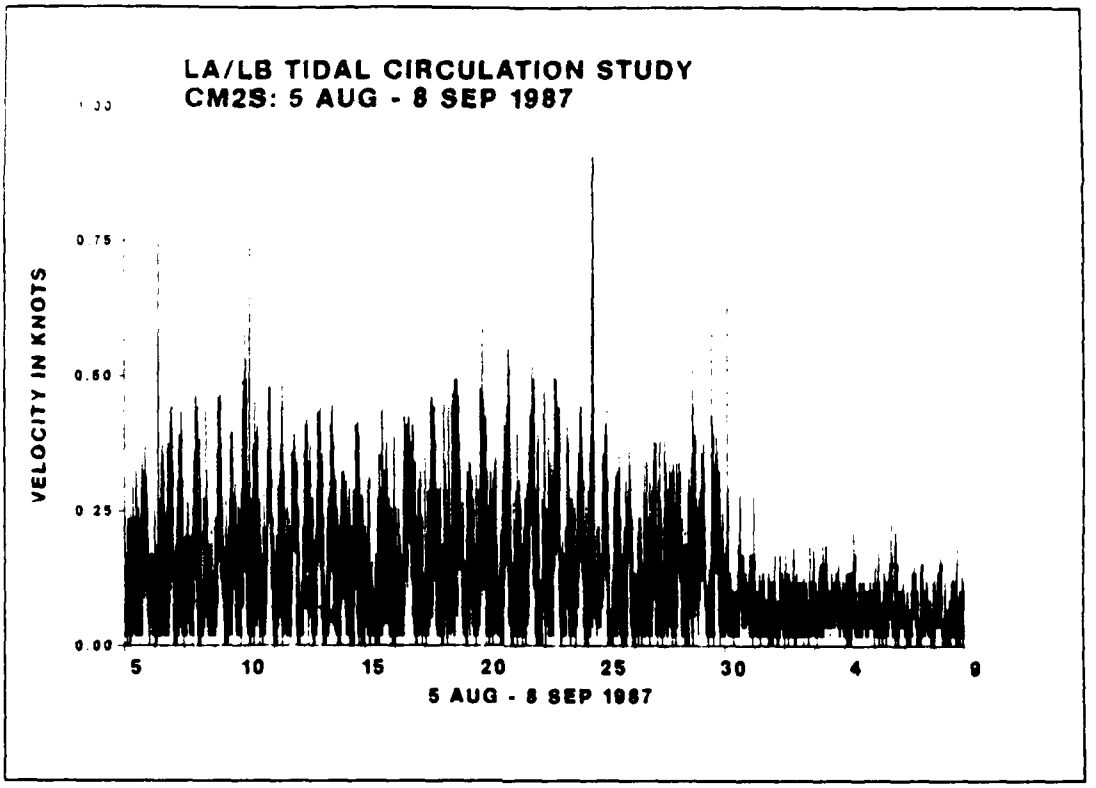

CURRENT VECTOR ROSE
N
W
E
S
LEGEND
0.25 FPS
0.50 FPS
0.75 FPS
1.00 FPS
PERCENTAGE OF SAMPLES
0-02%
2-10%
10-20%
> 20%
VECTORS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM8M: AUG - SEP 1987
MEAN CURRENT VECTORS

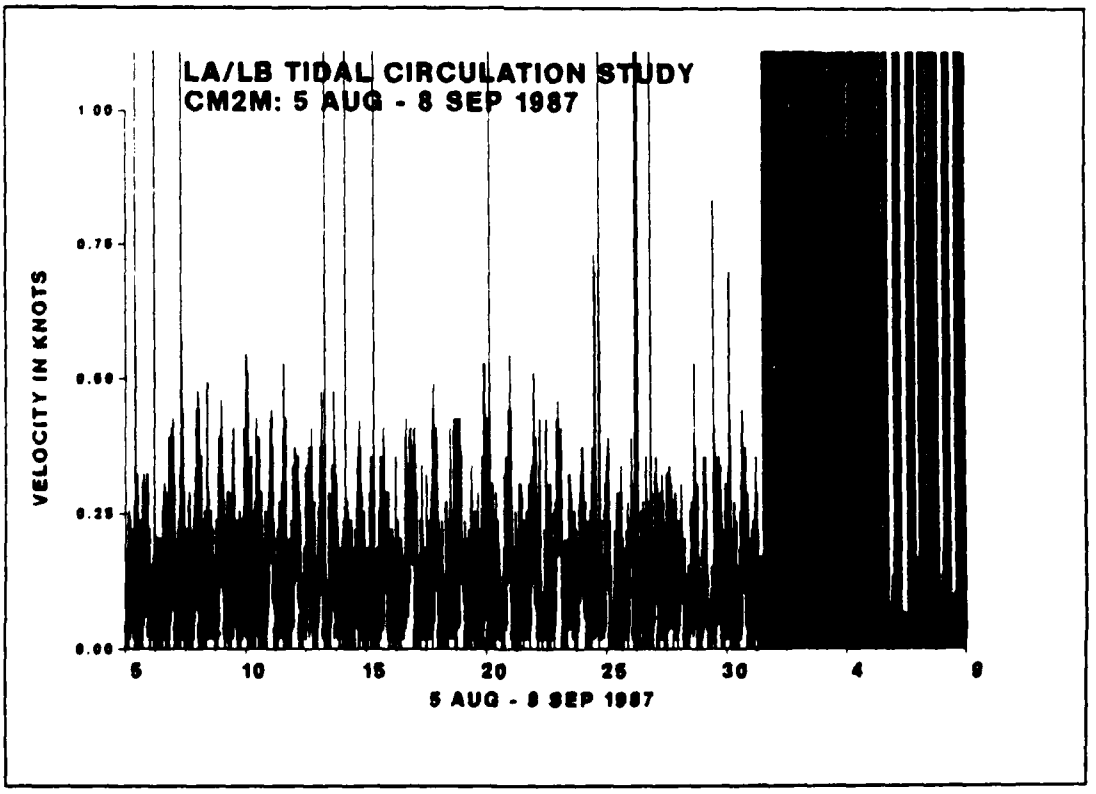
APPENDIX F: CURRENT VELOCITY TIME SERIES PLOTS

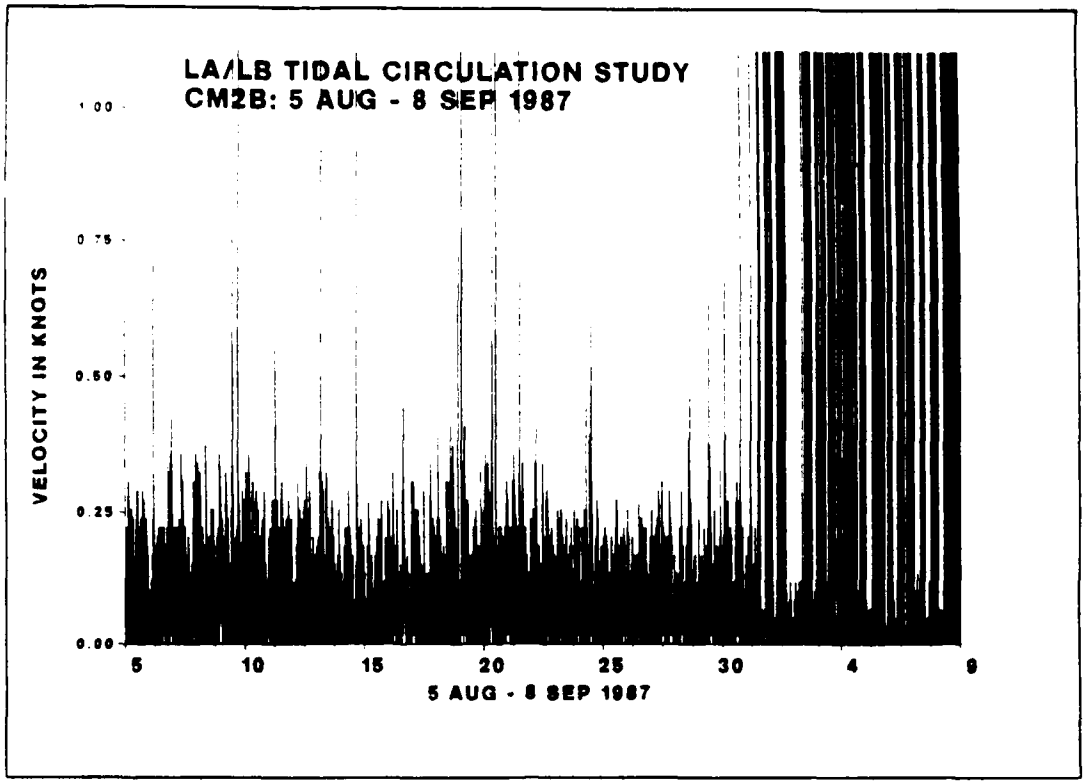
This appendix contains plots of current velocity time series. Time series are suffixed with S, M, and B, which stand for surface, middepth, and bottom, respectively.

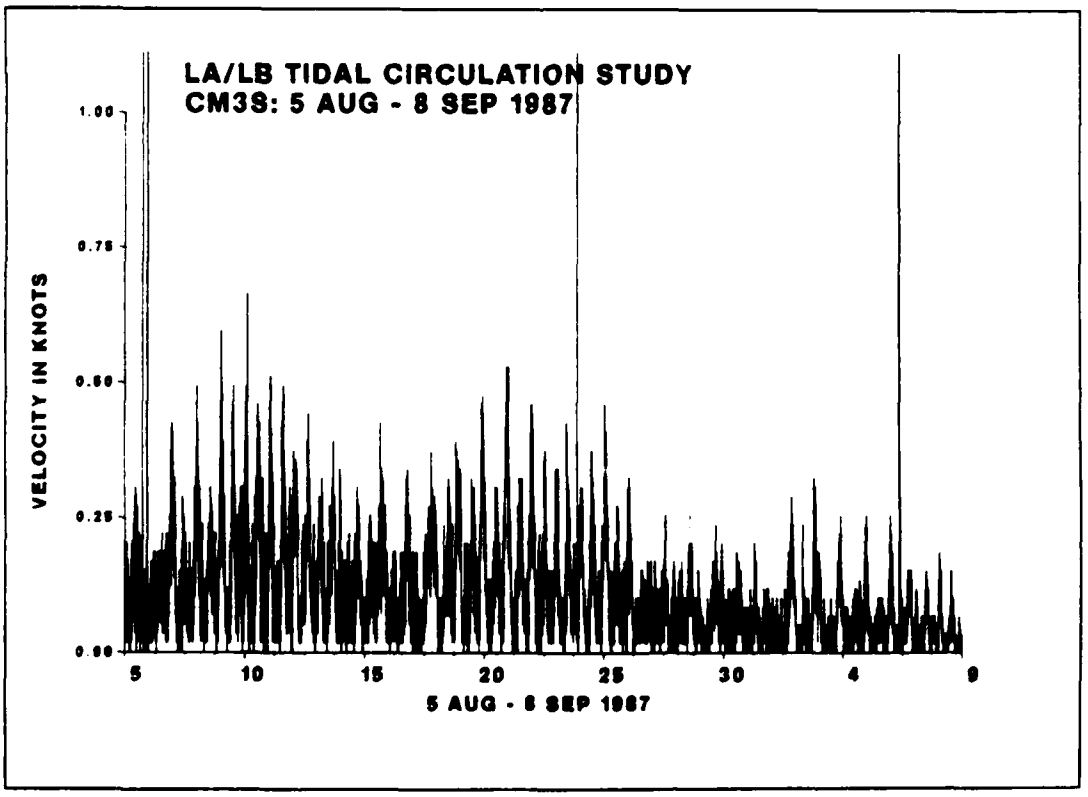

LA/LB TIDAL CIRCULATION
CM1B: 5 AUG - 8 SEP 1987
VELOCITY IN KNOTS
1.00
0.75
0.50
0.25
0.00
5
10
15
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM1B: 5 AUG - 8 SEP 1987
VELOCITY IN KNOTS
1.00
0.75
0.50
0.25
0.00
5
10
15
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM2S: 5 AUG - 8 SEP 1987
VELOCITY IN KNOTS
0.75
0.50
0.25
0.00
5
10
15
20
25
30
4
8
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM2M: 5 AUG - 8 SEP 1987
VELOCITY IN KNOTS
1.00
0.75
0.50
0.25
0.00
5
10
15
20
25
30
4
8
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM2B: 5 AUG - 8 SEP 1987
VELOCITY IN KNOTS
1.00
0.75
0.50
0.25
0.00
5
10
15
20
25
30
4
9
5 AUG - 8 SEP 1987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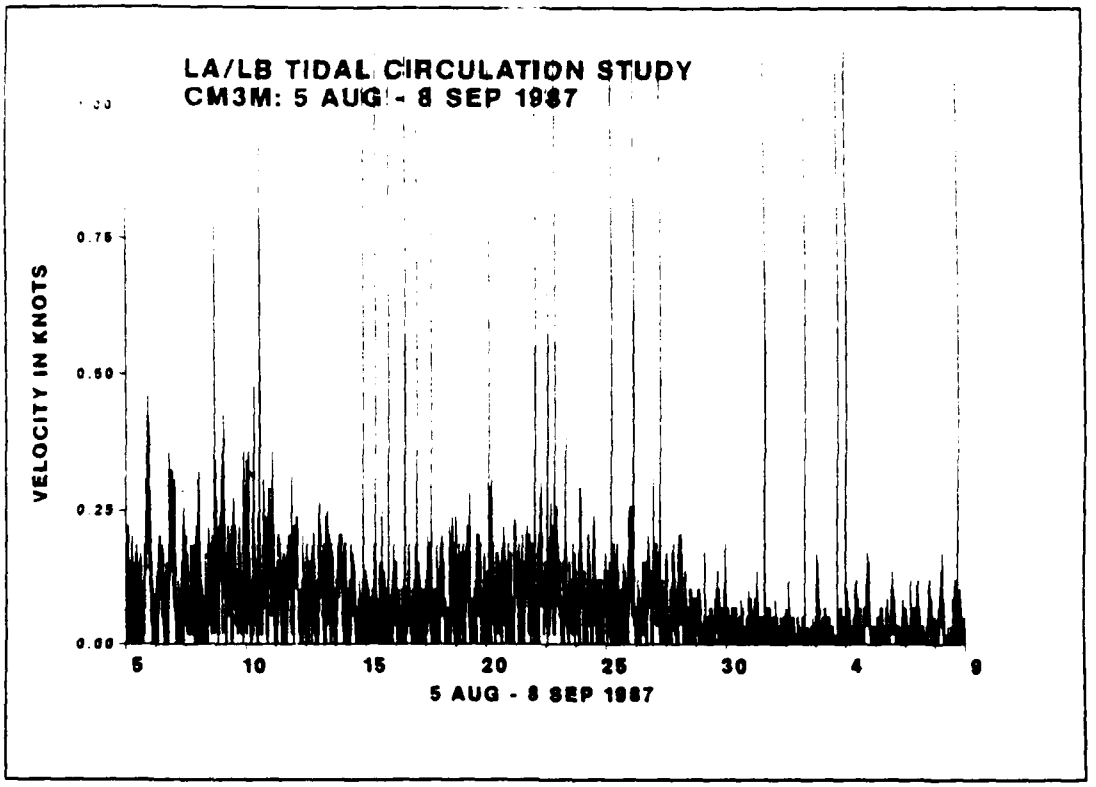
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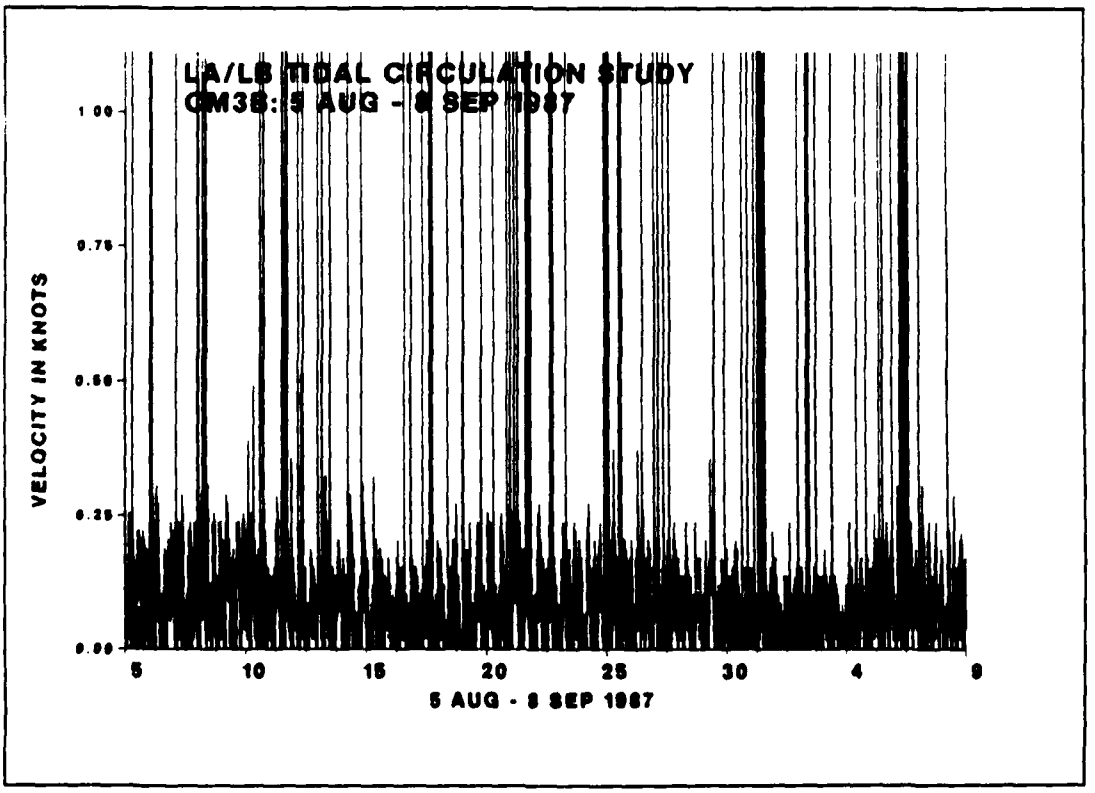
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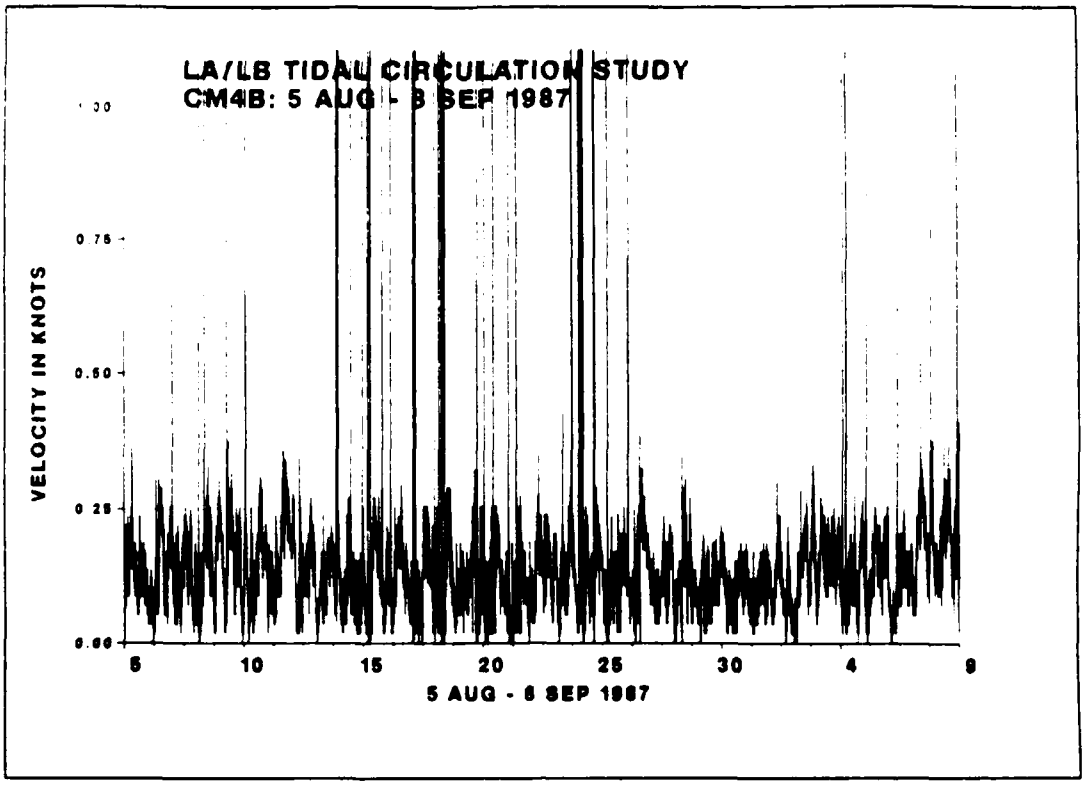
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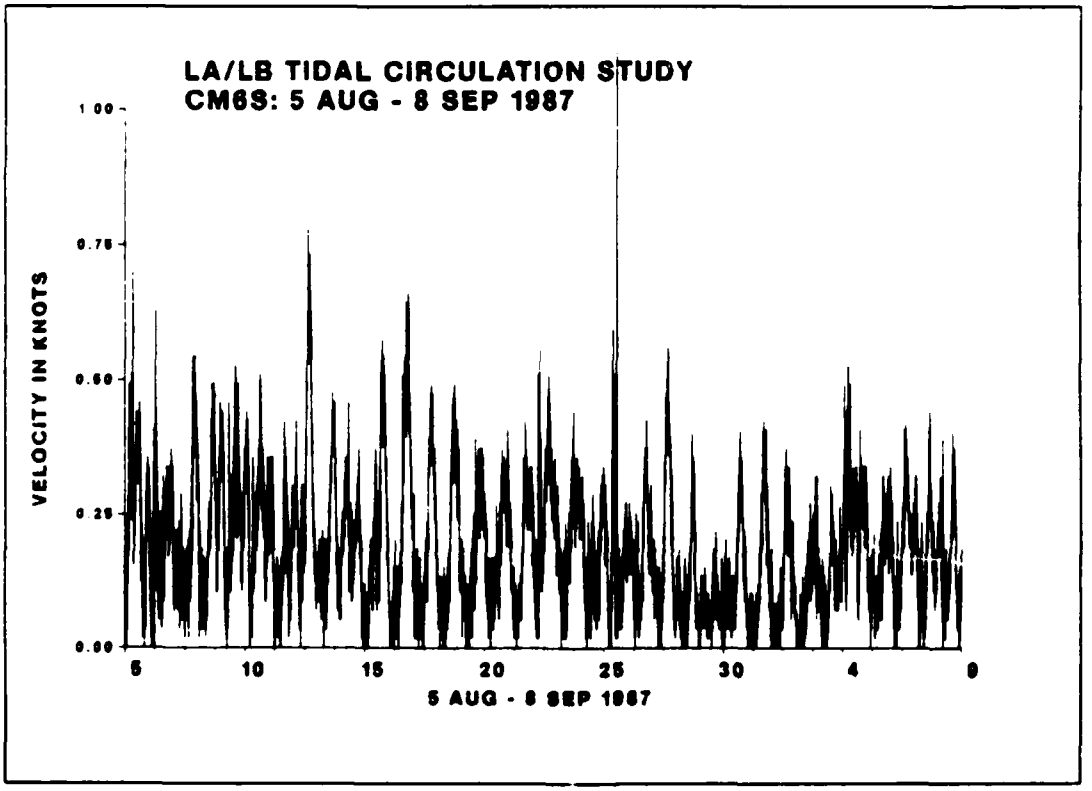
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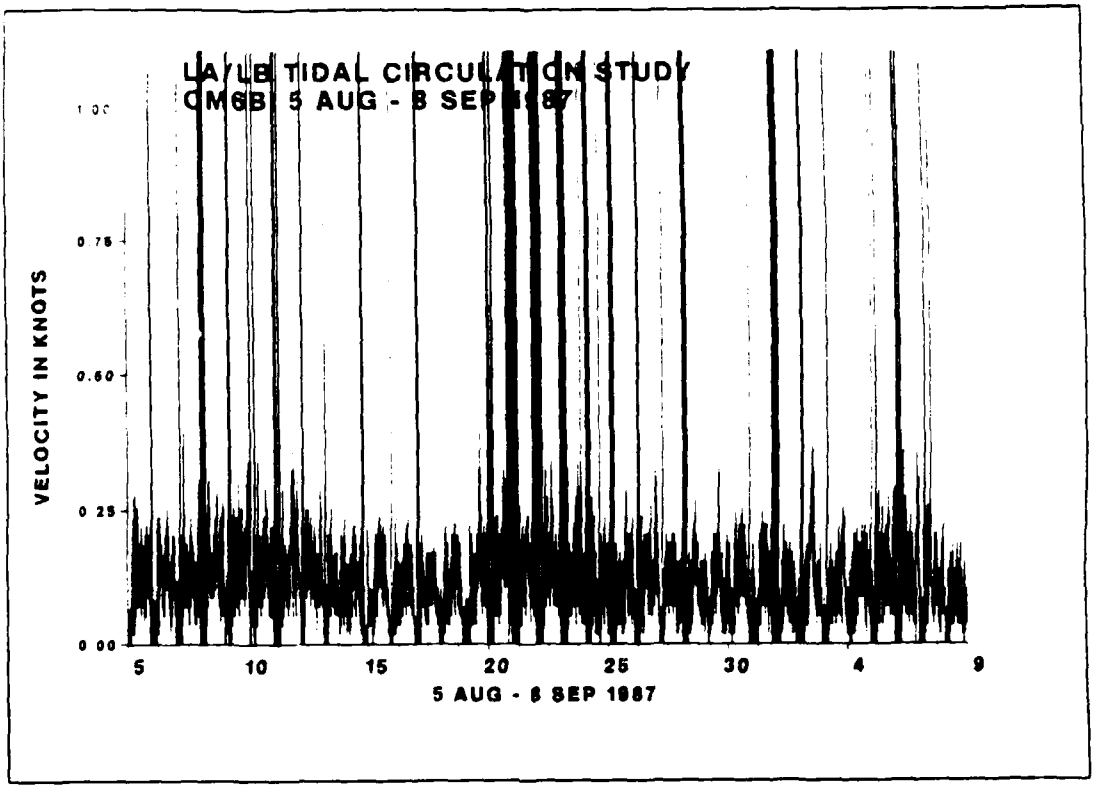
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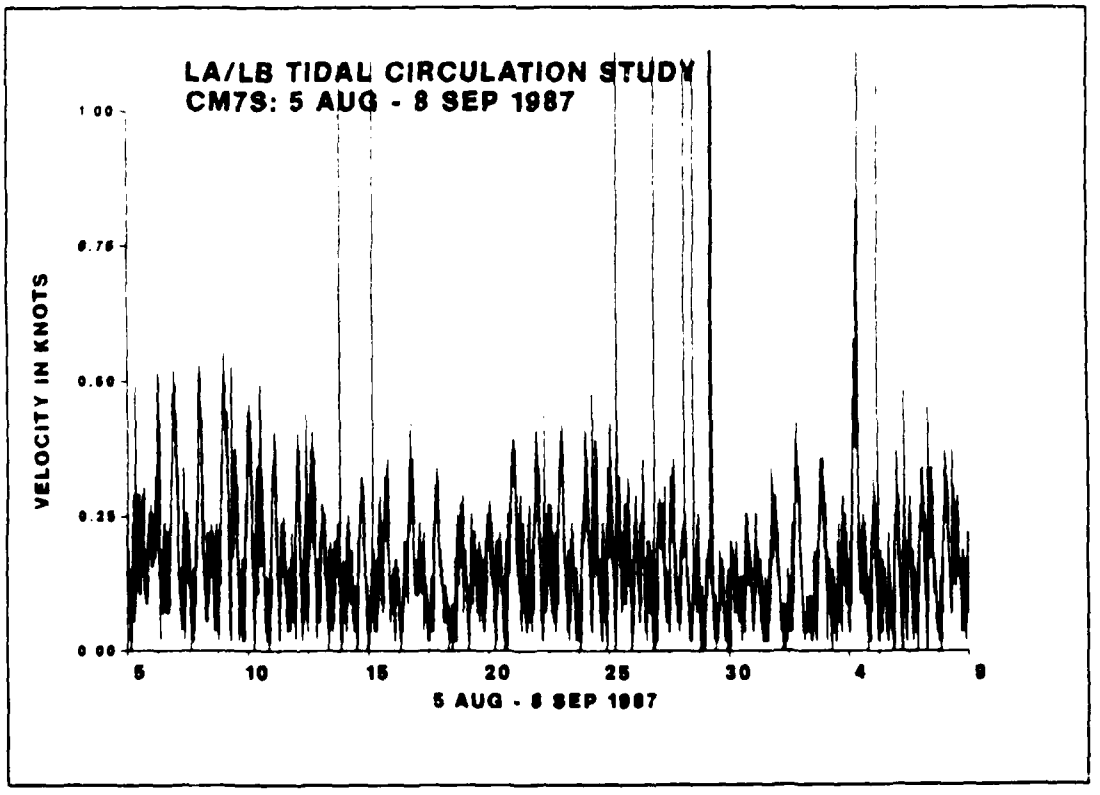
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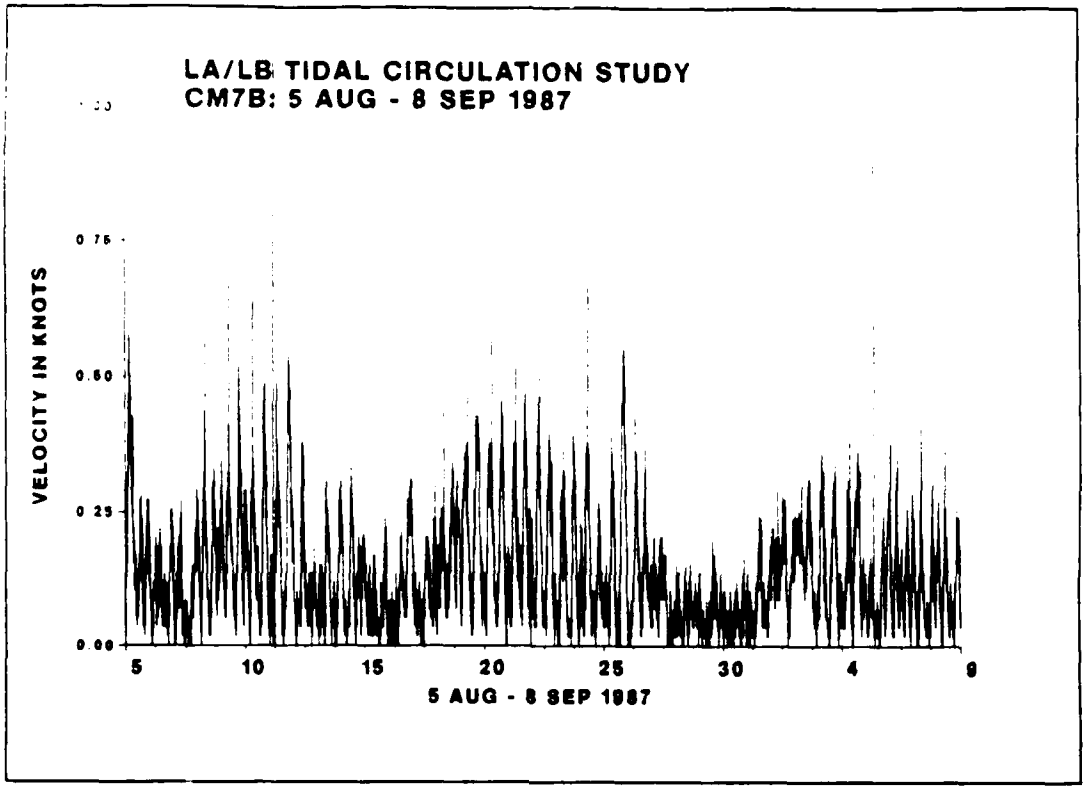
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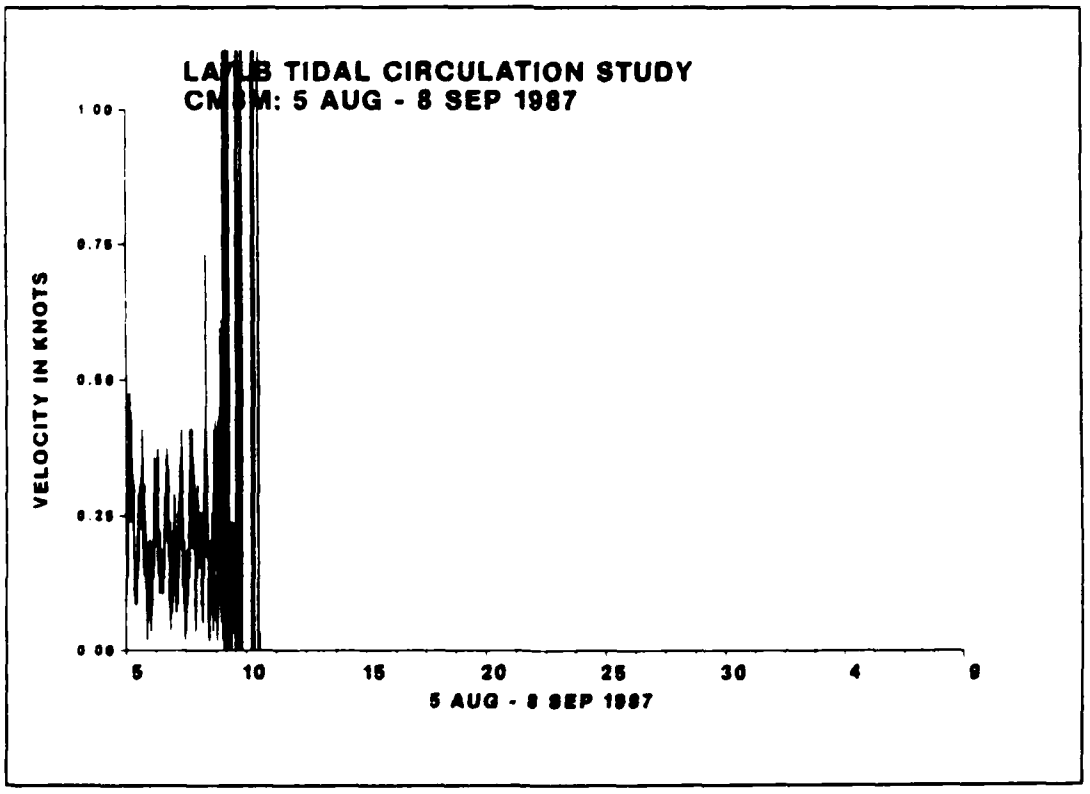
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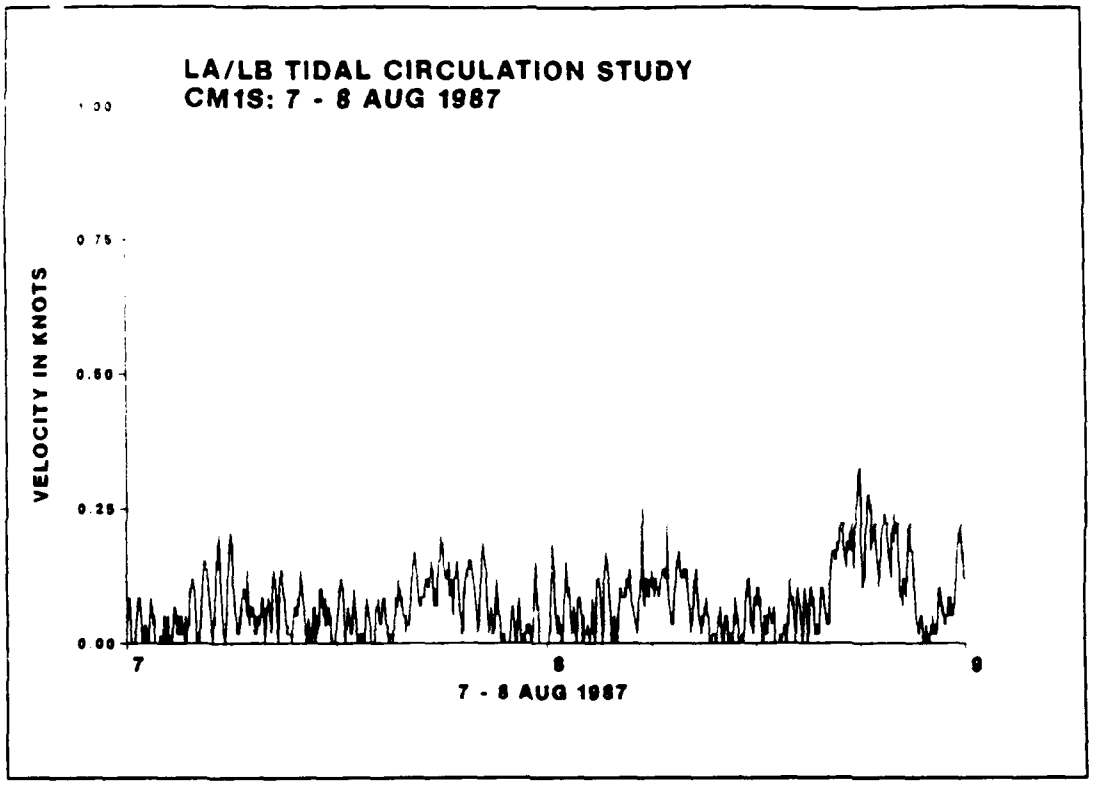
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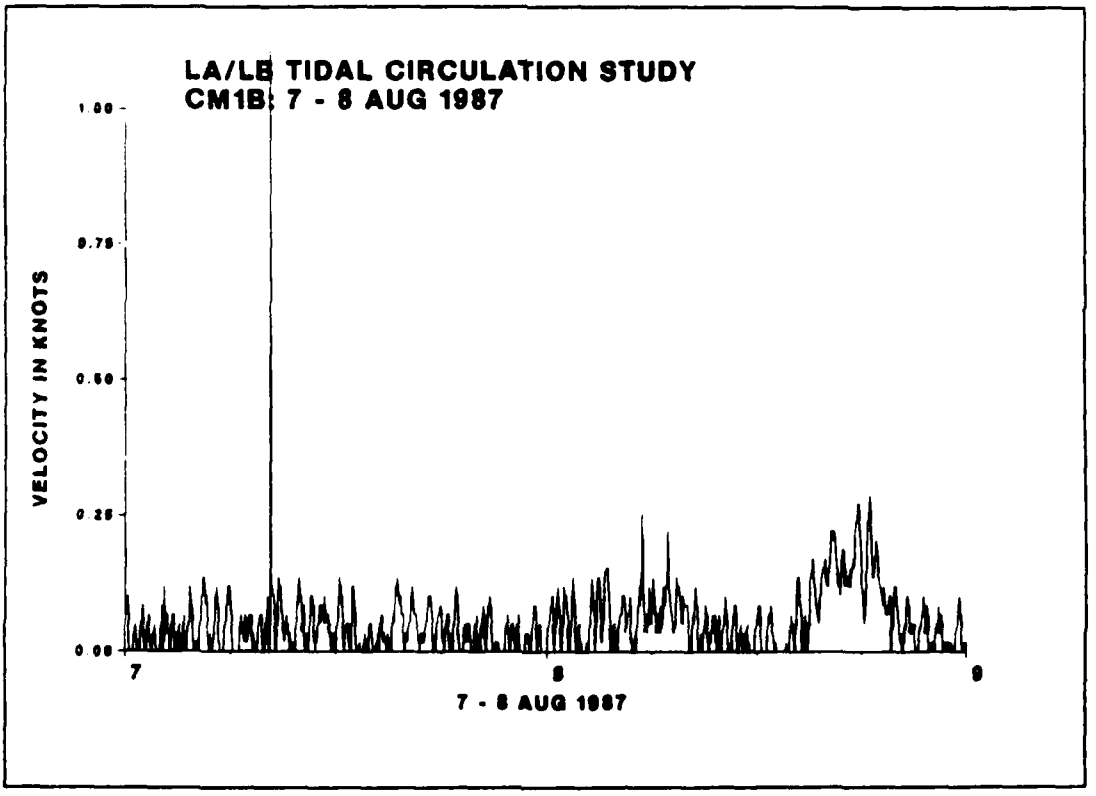
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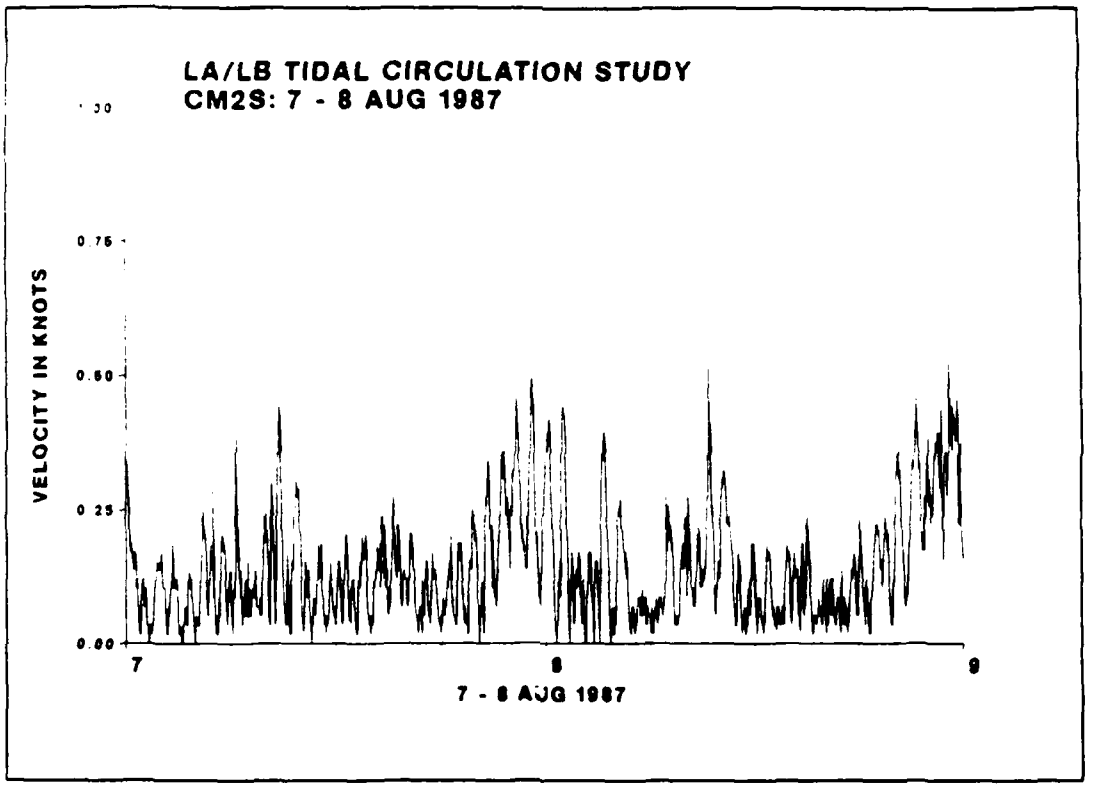
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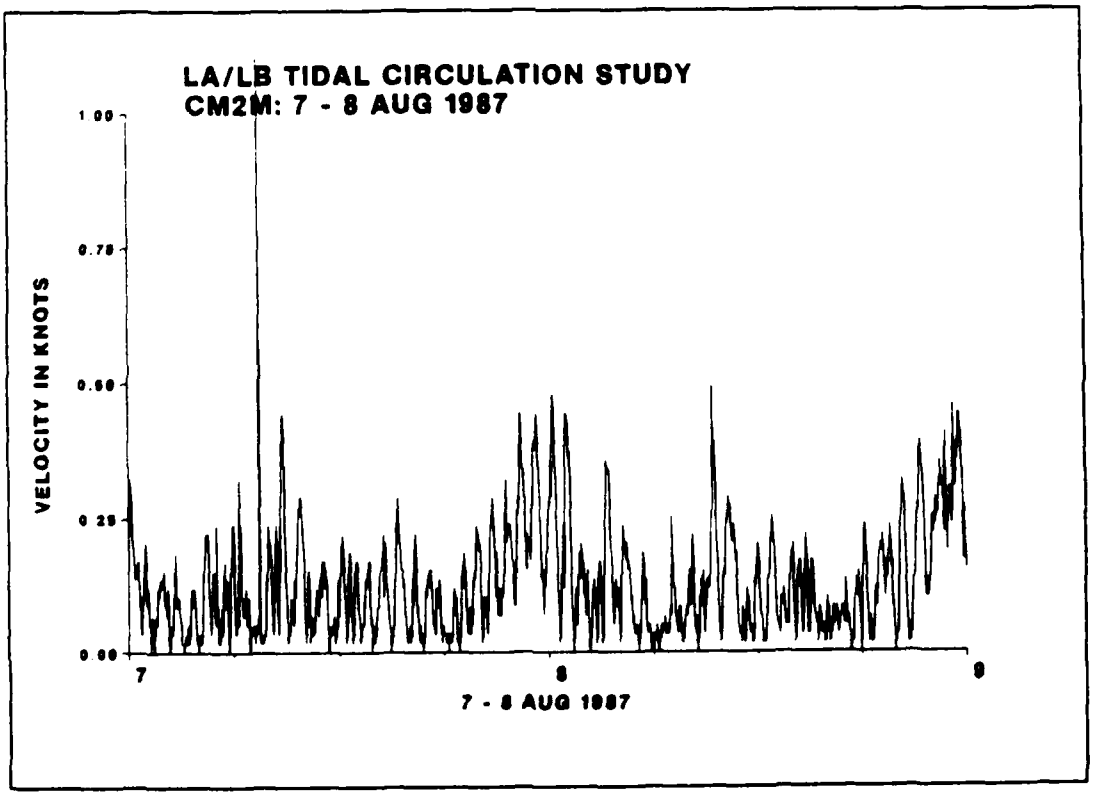
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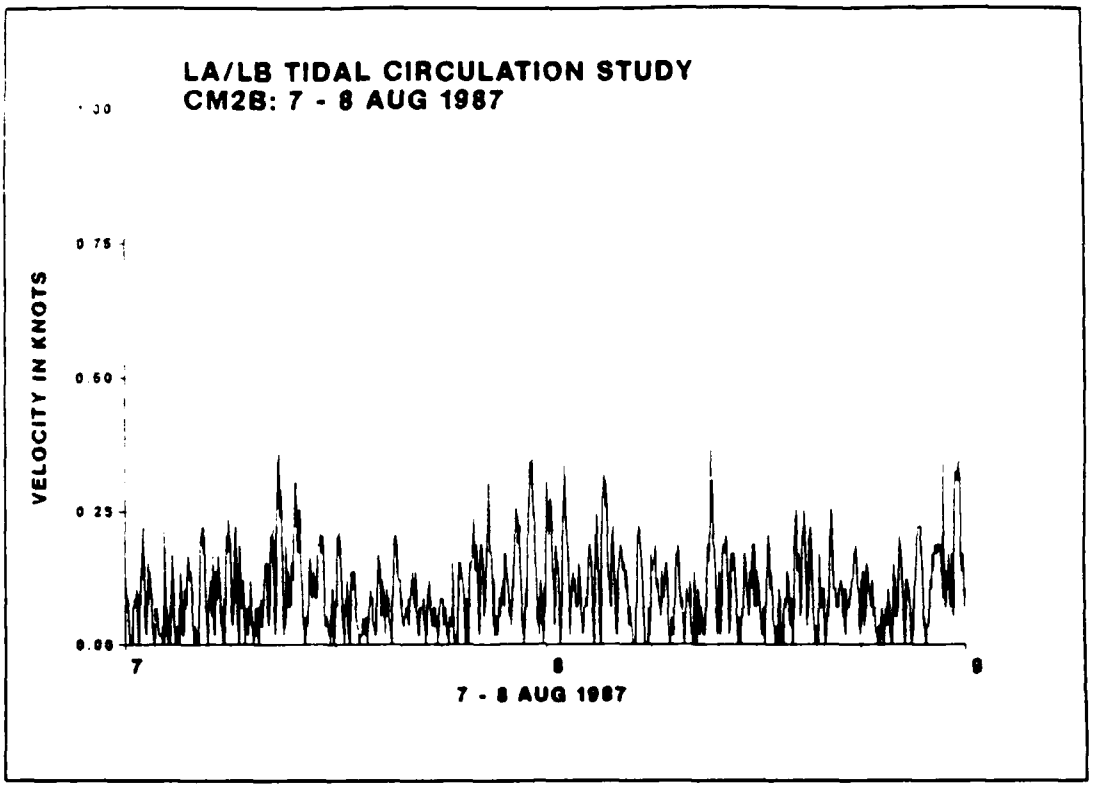
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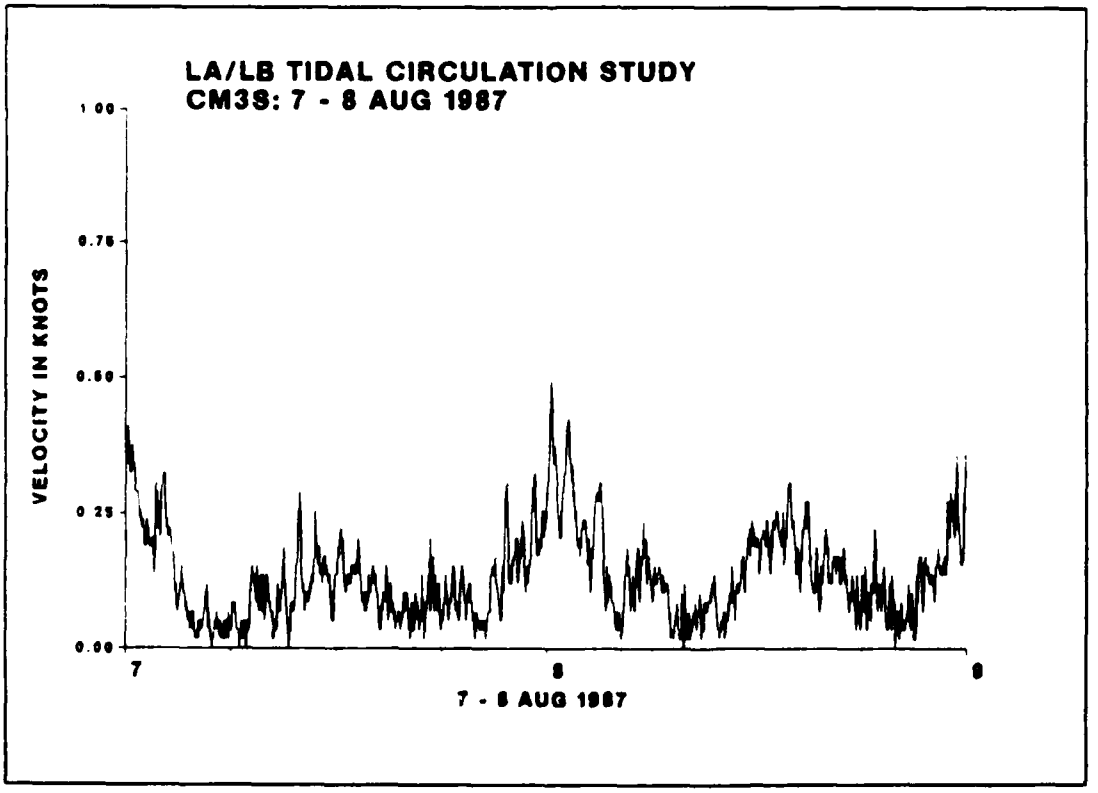
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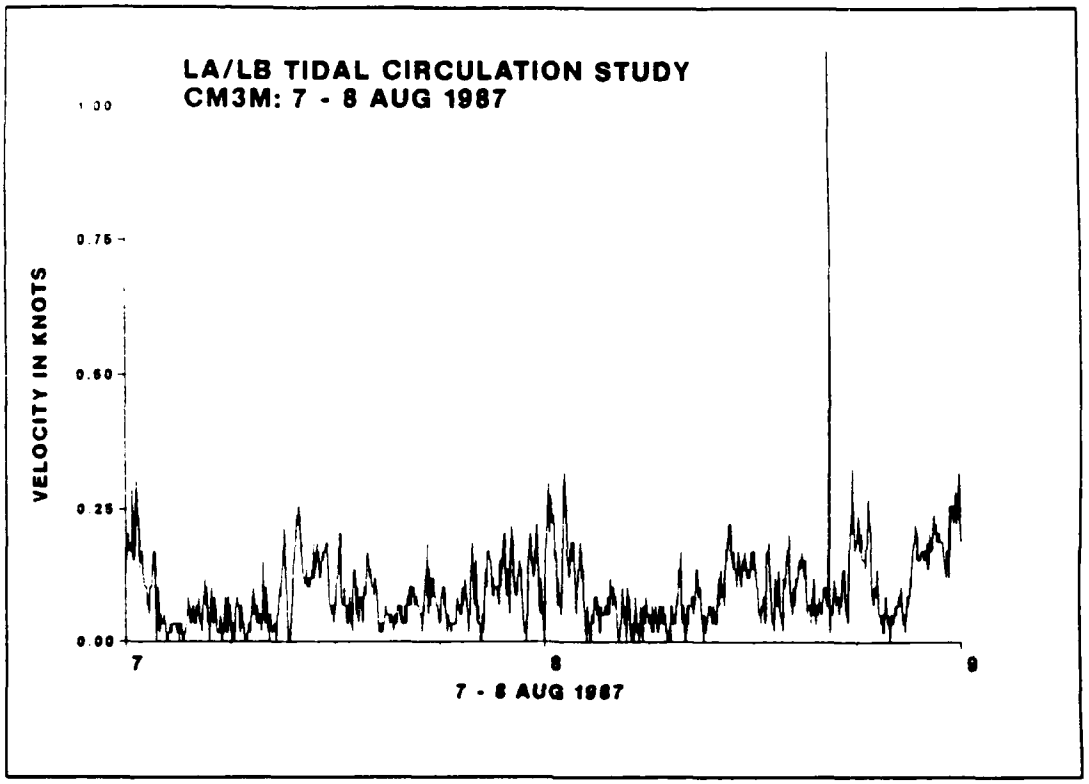
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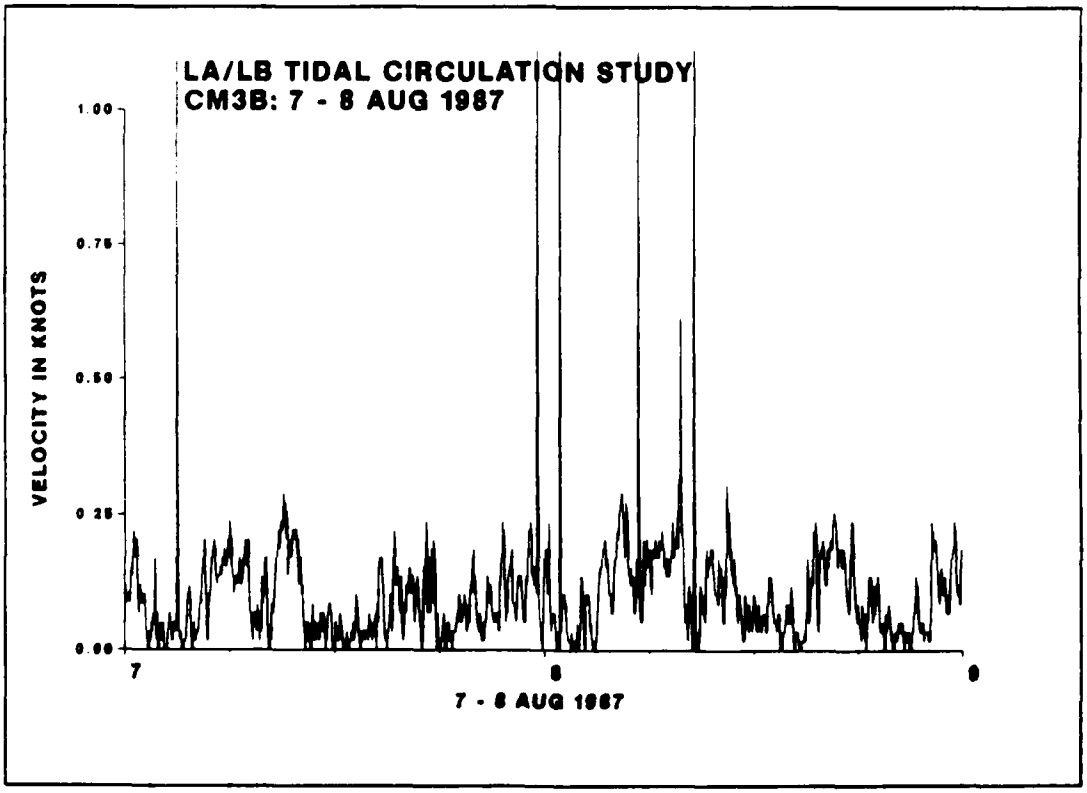
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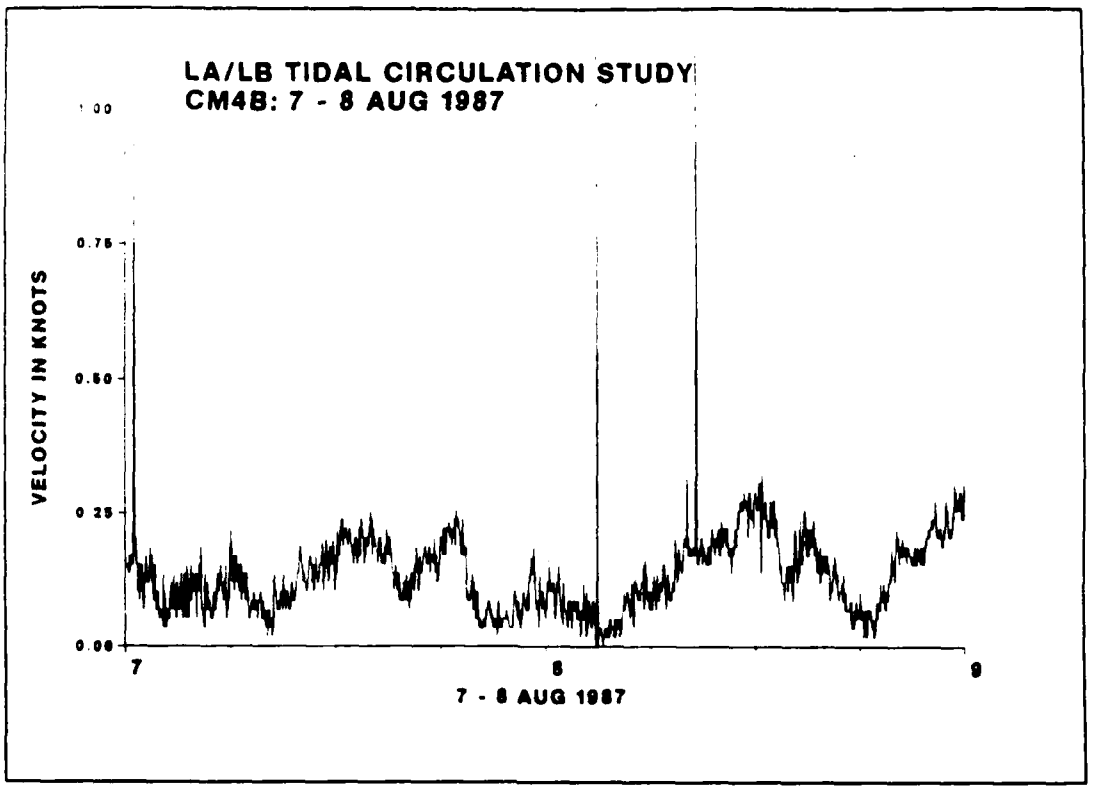
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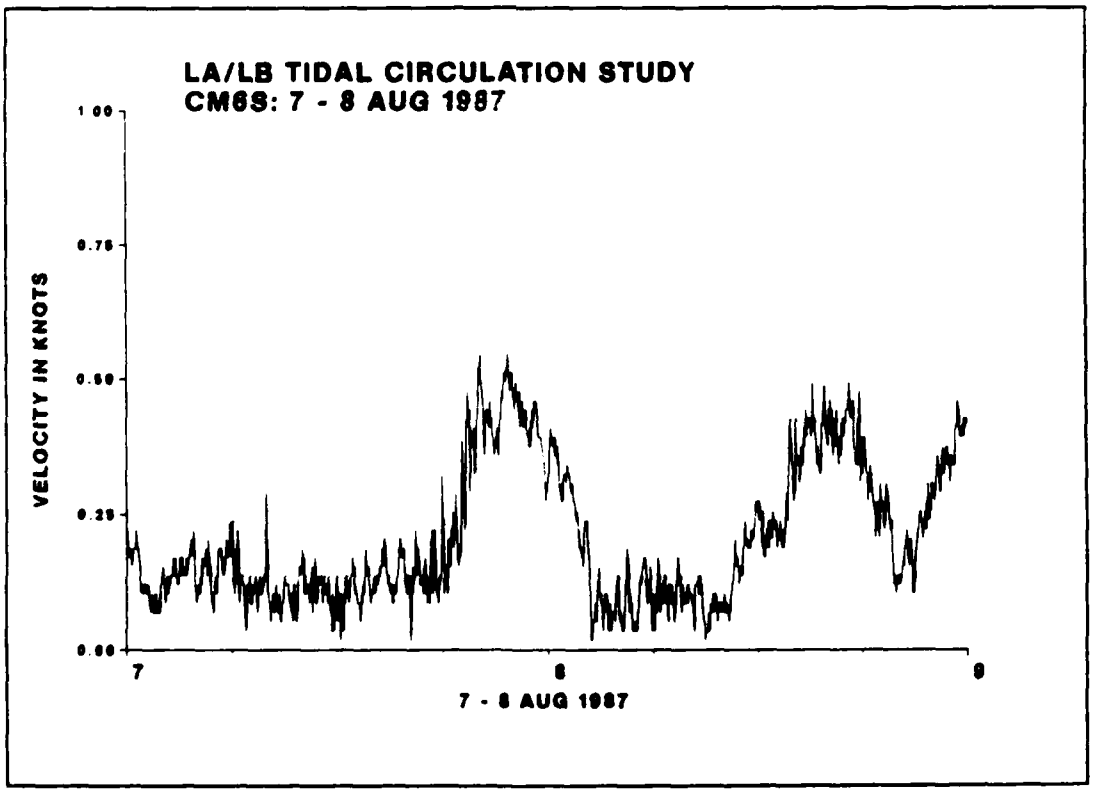
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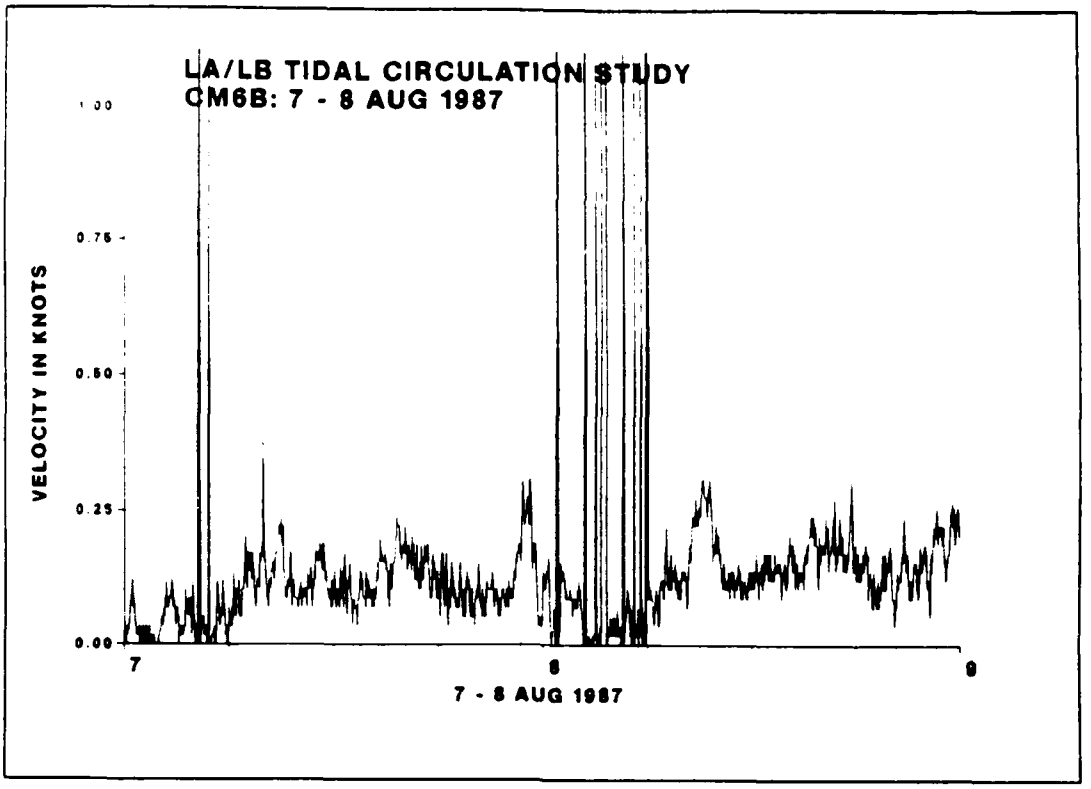
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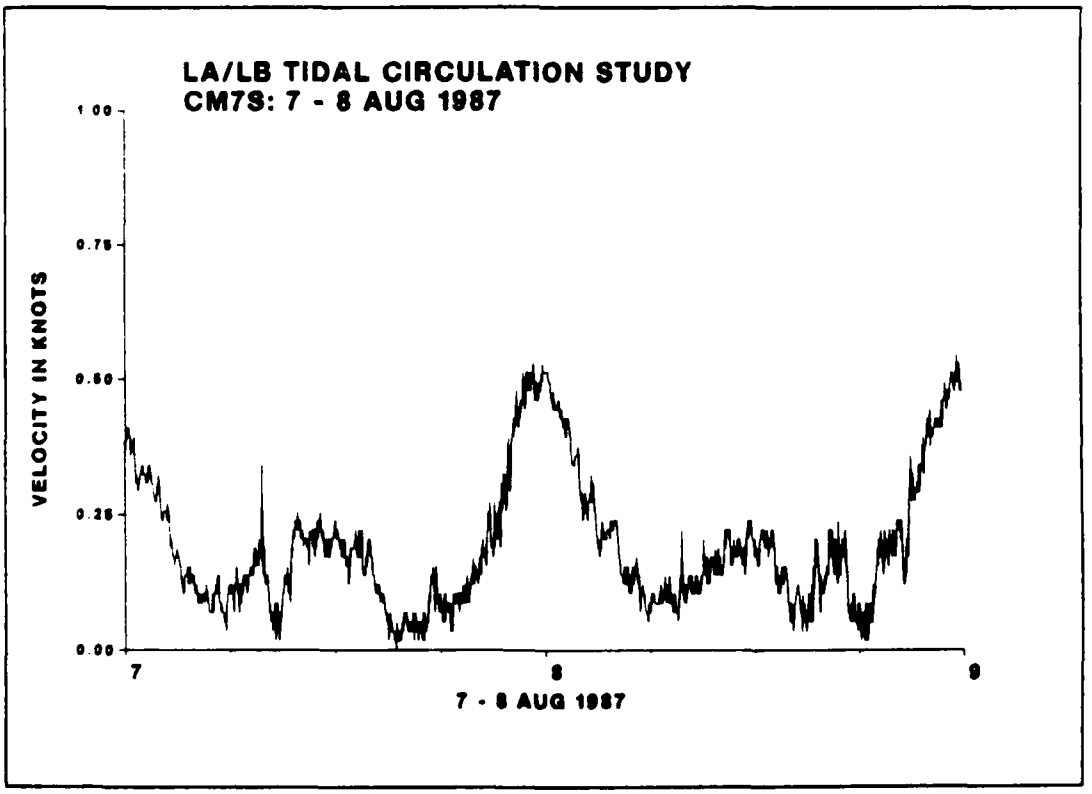
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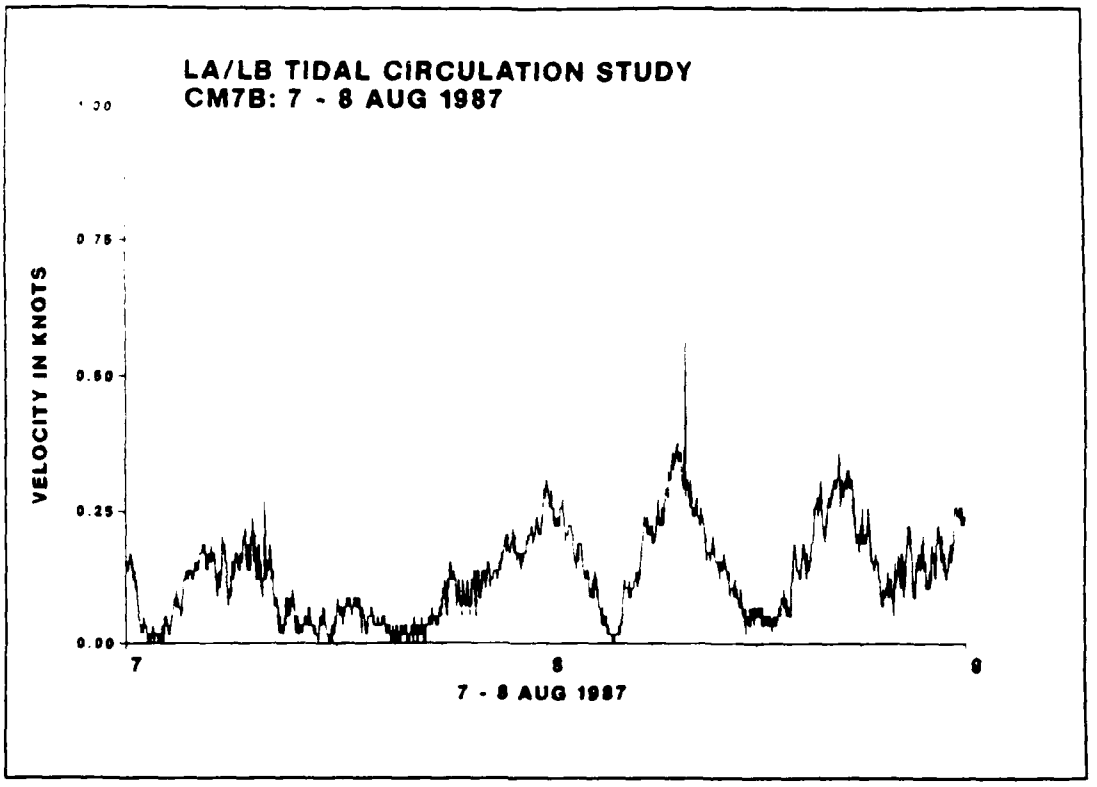
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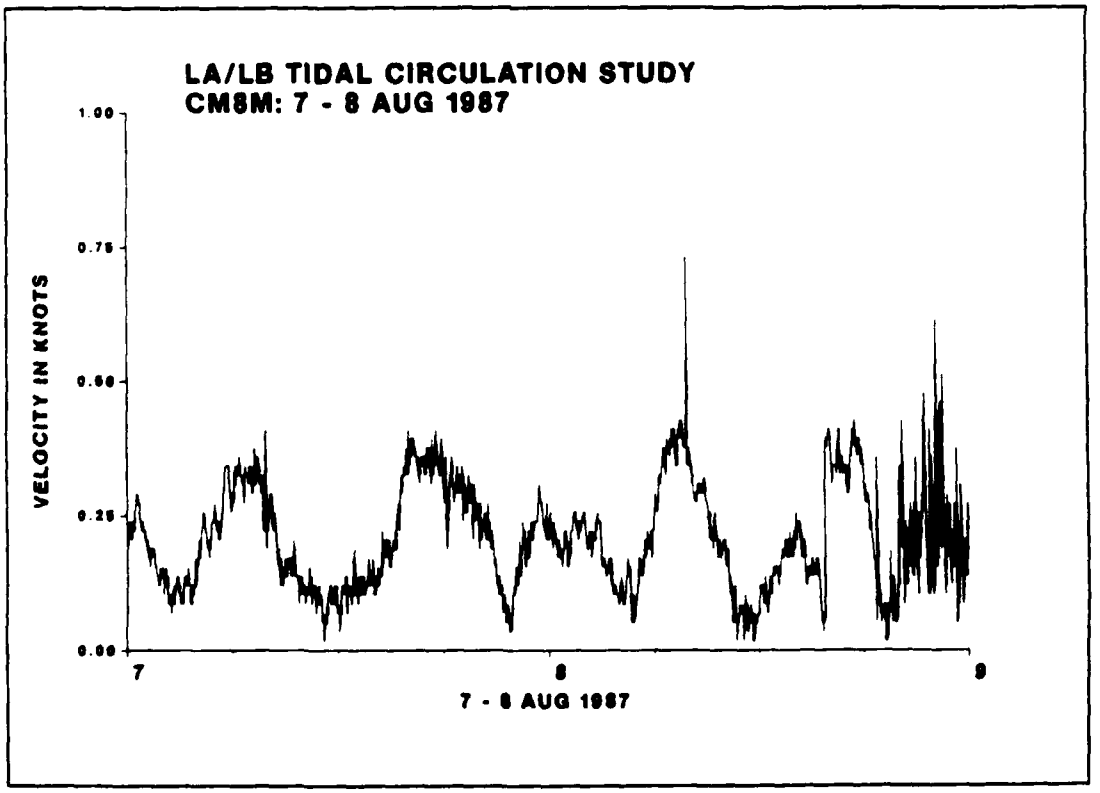
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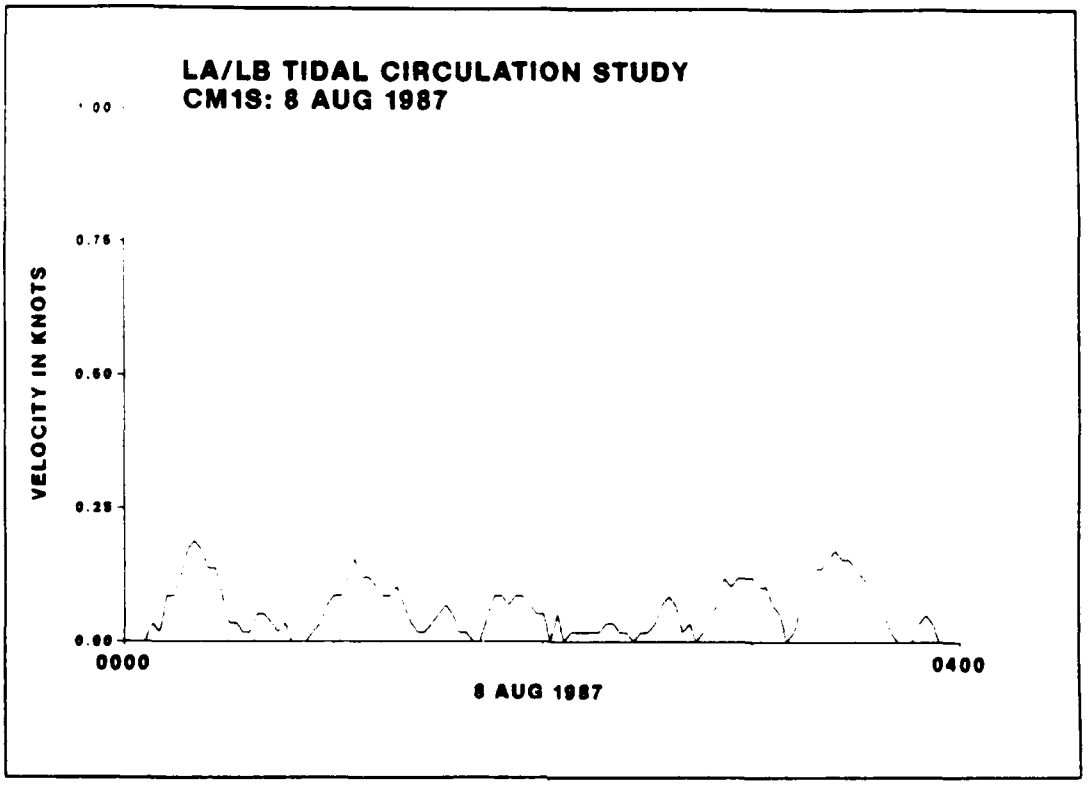
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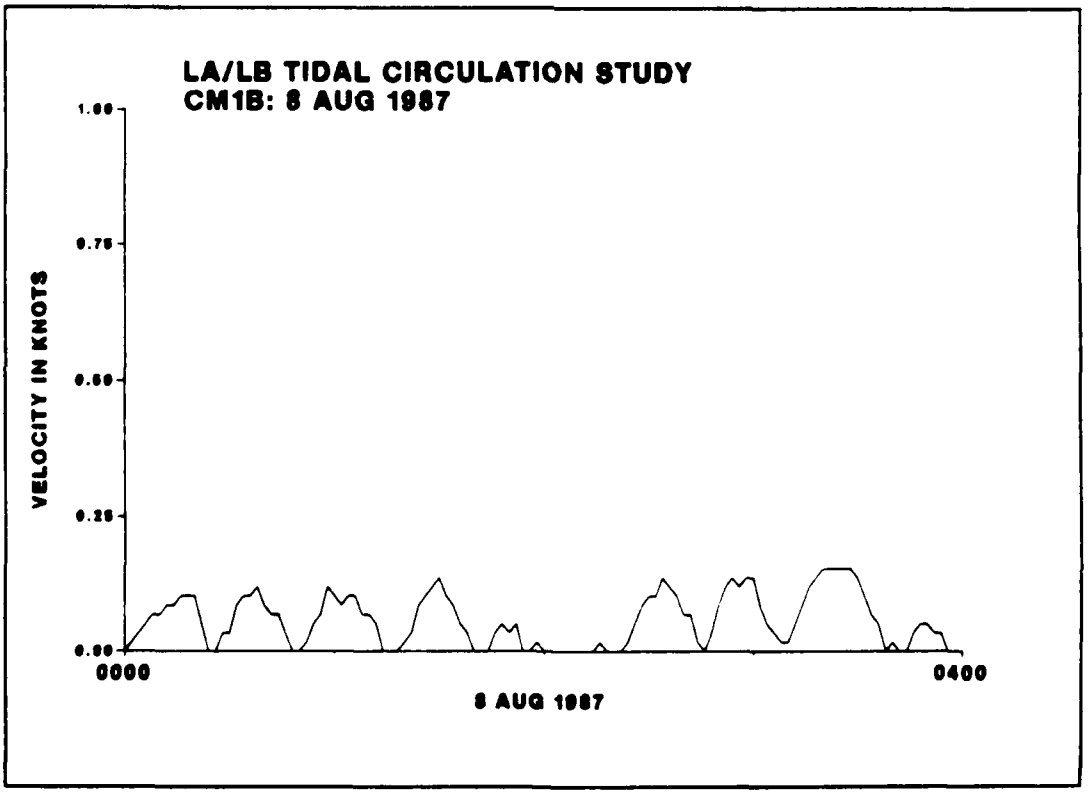
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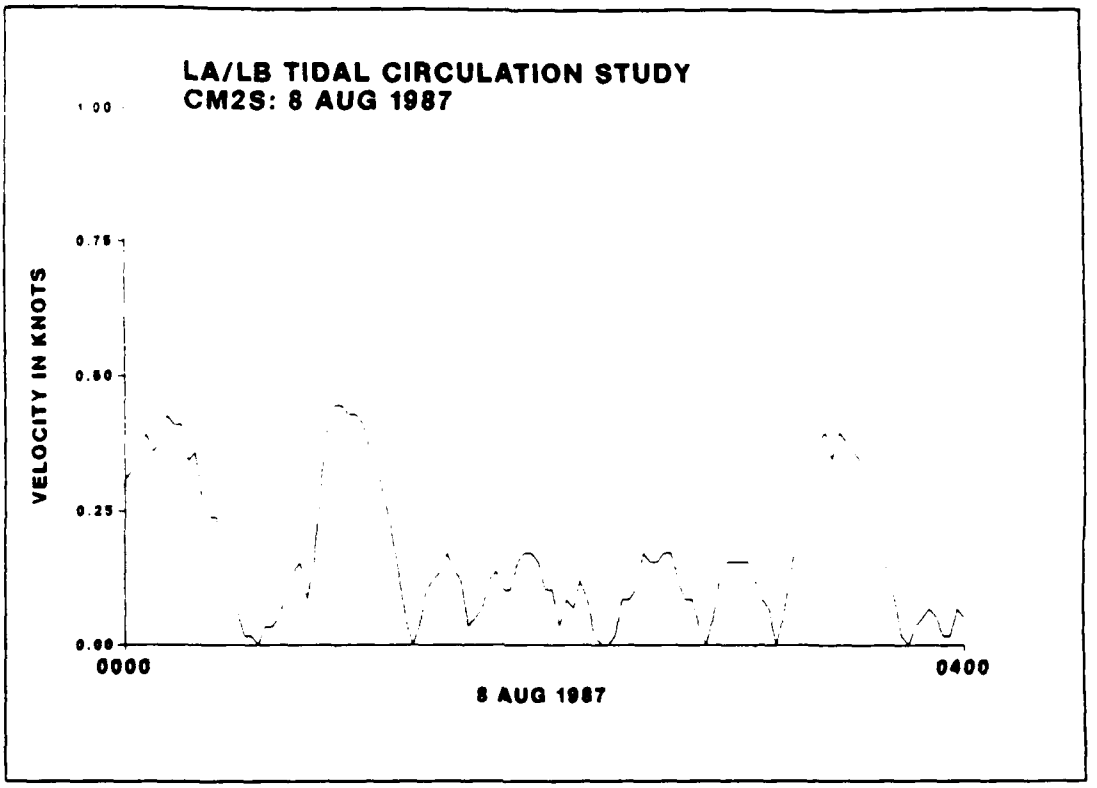
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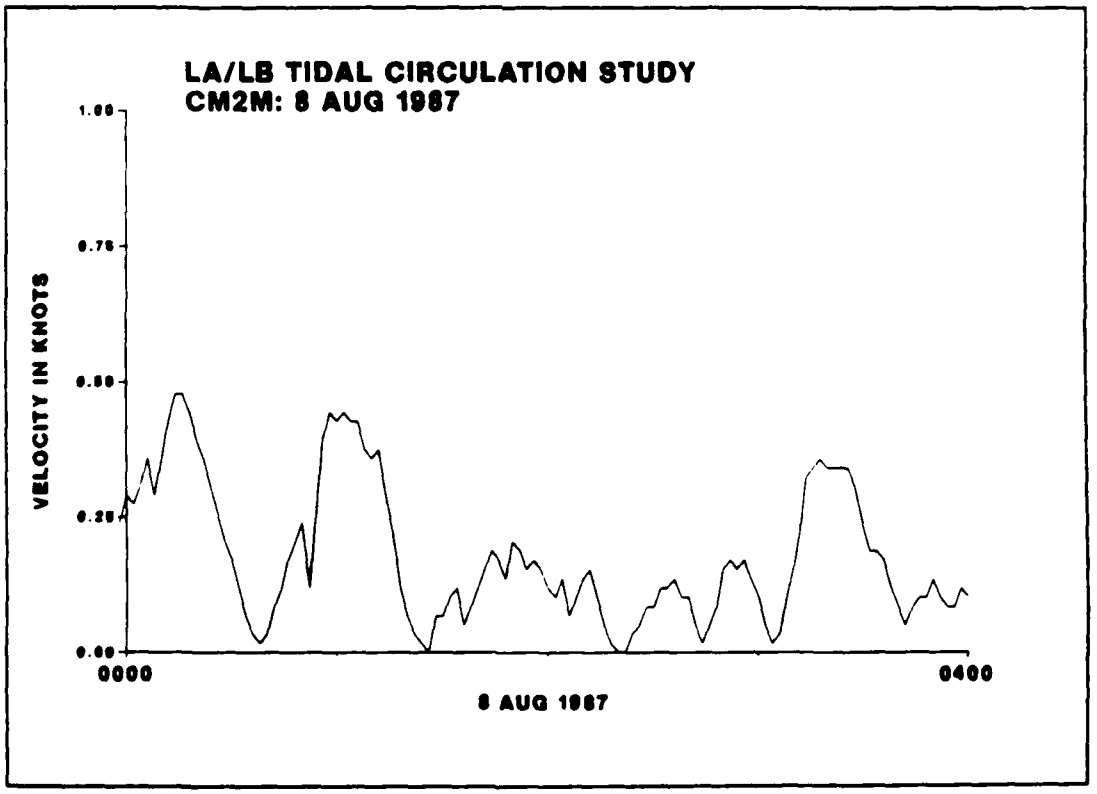
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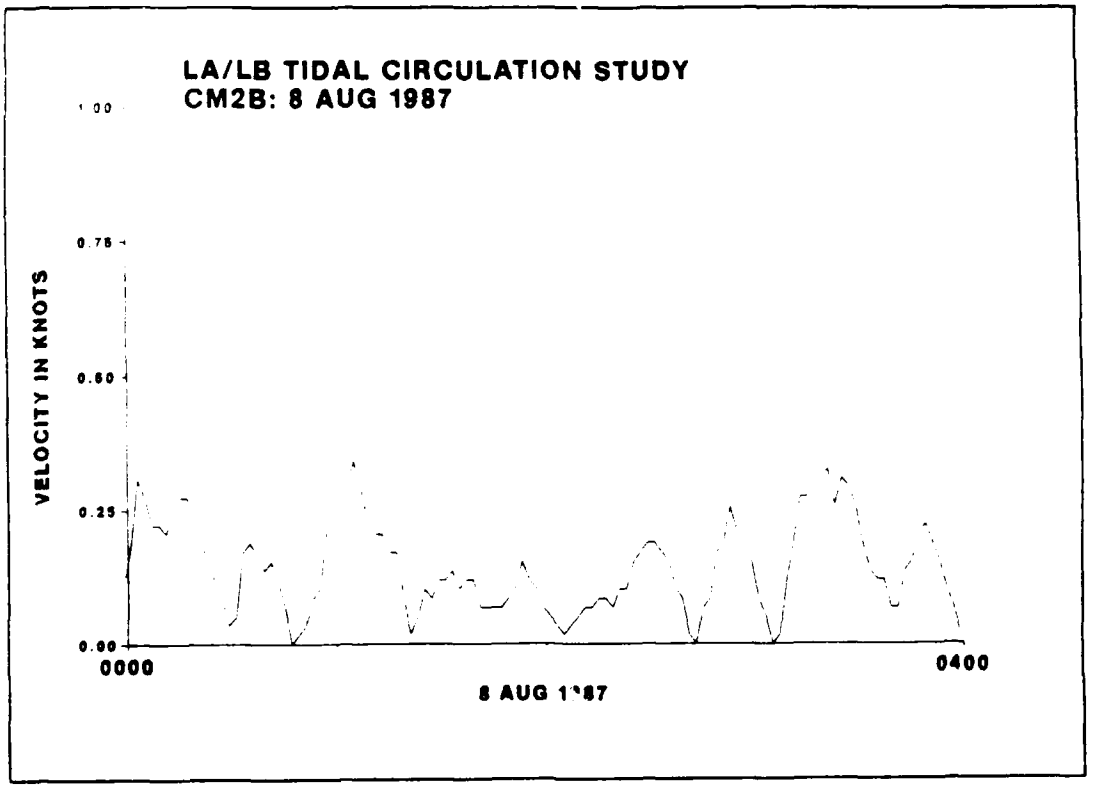
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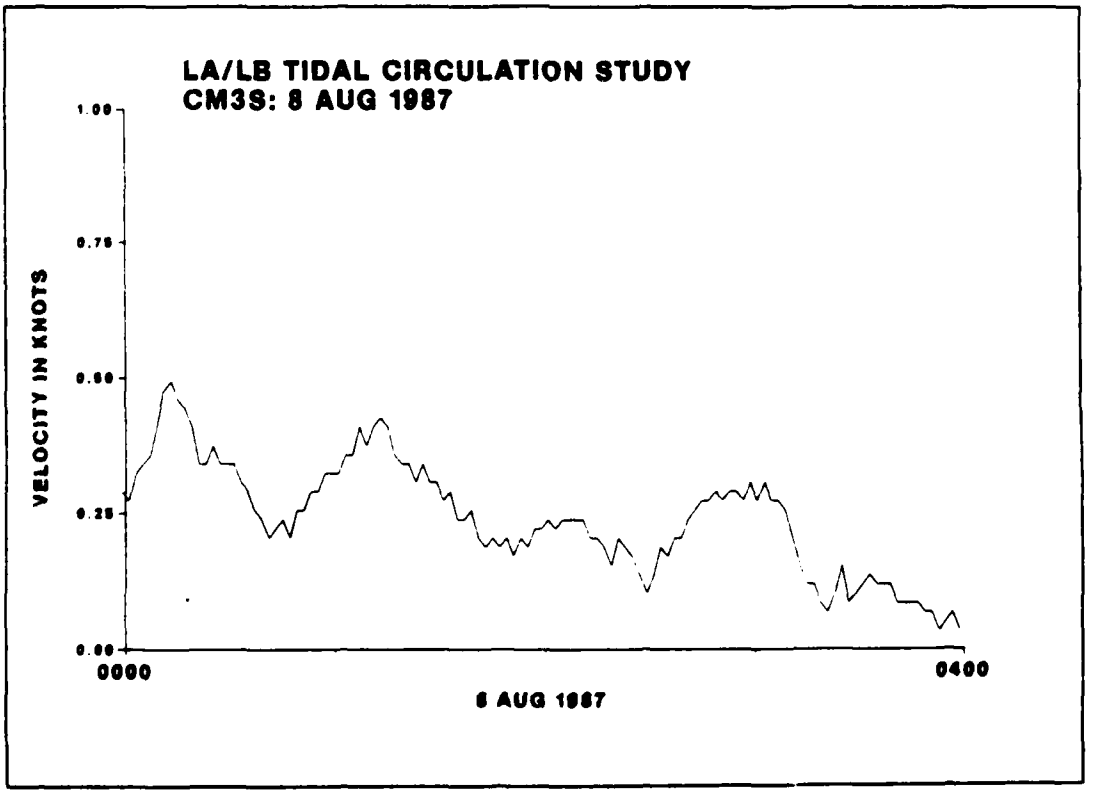
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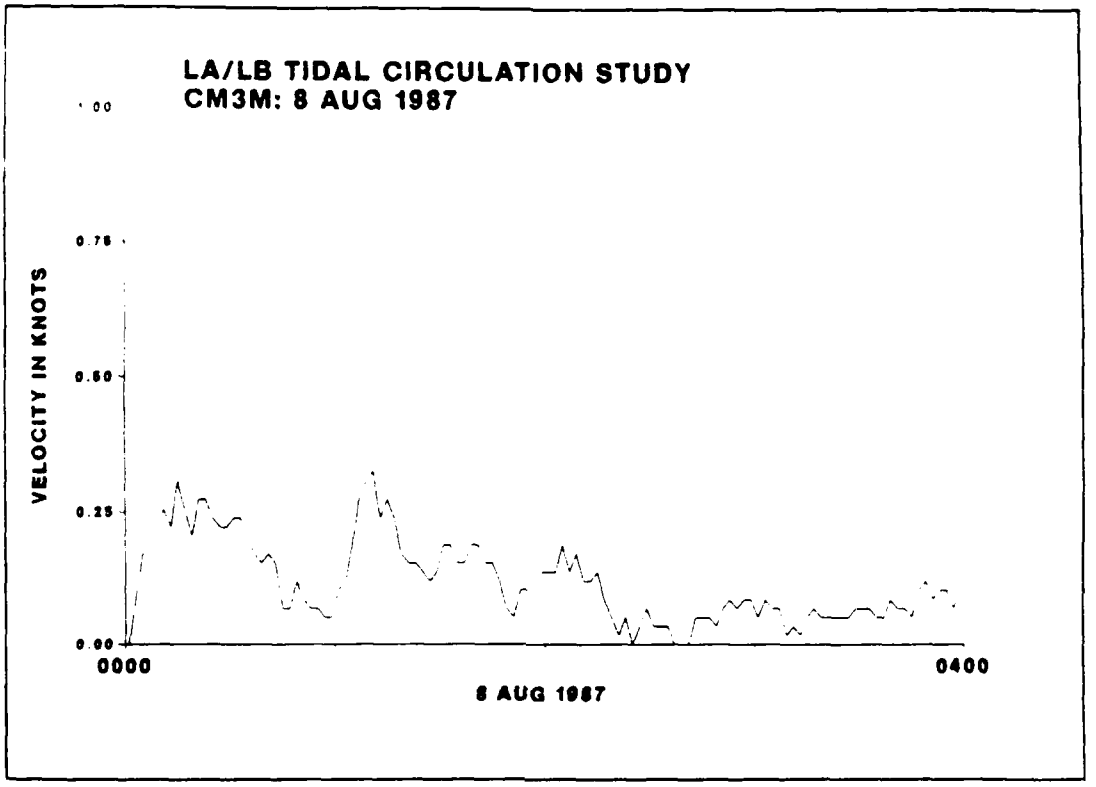
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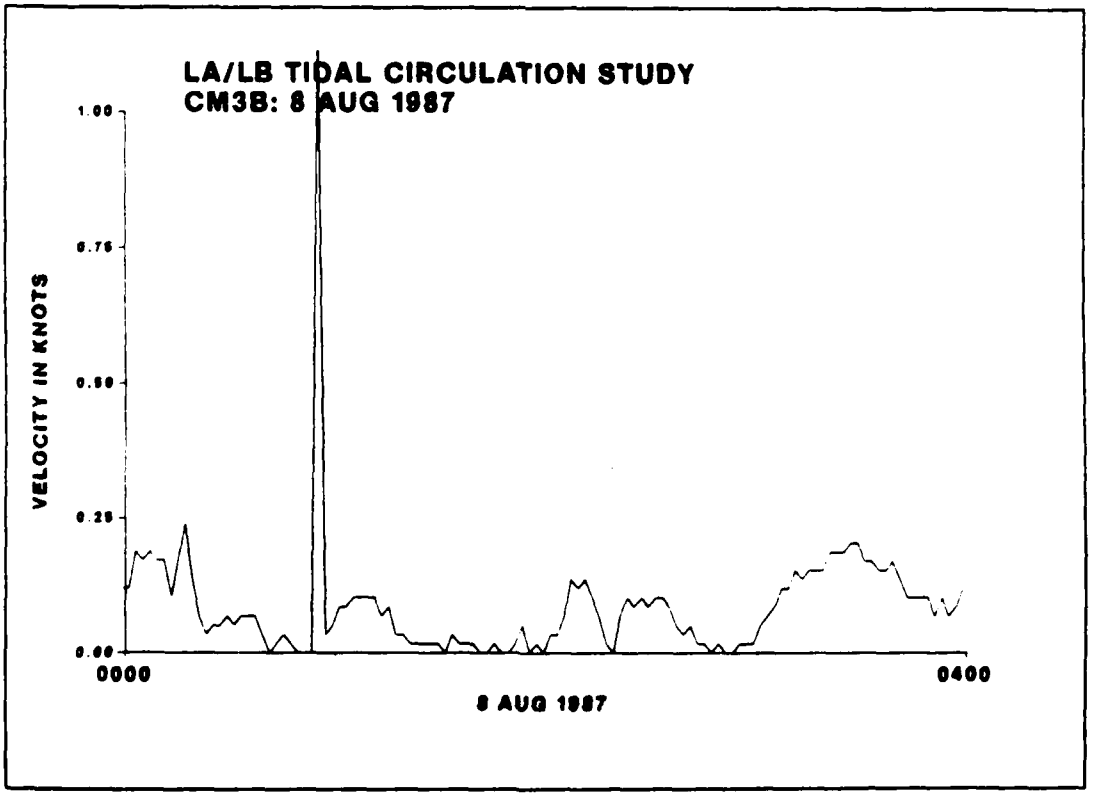
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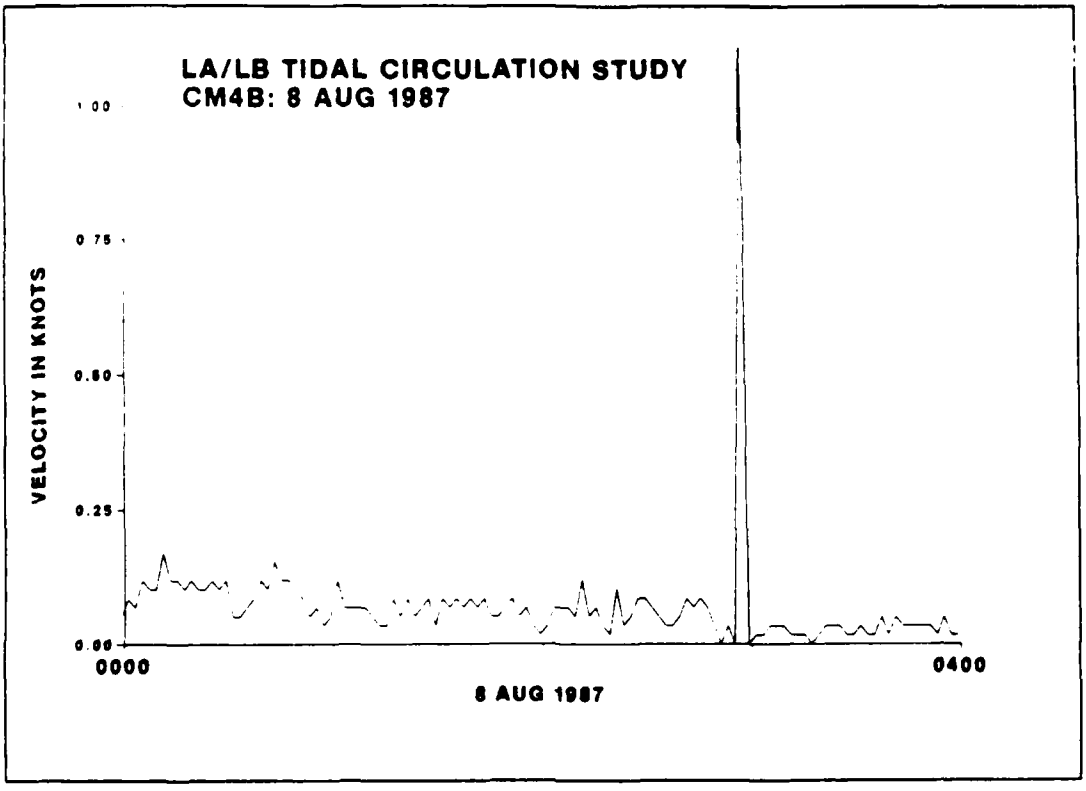
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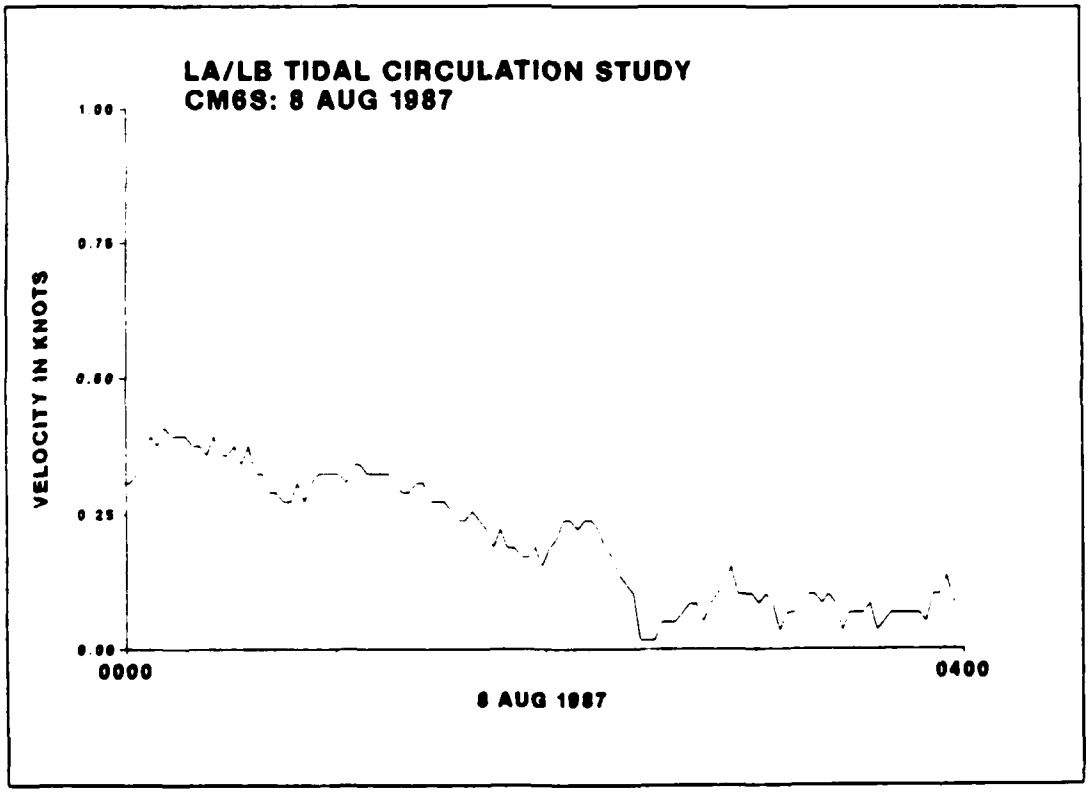
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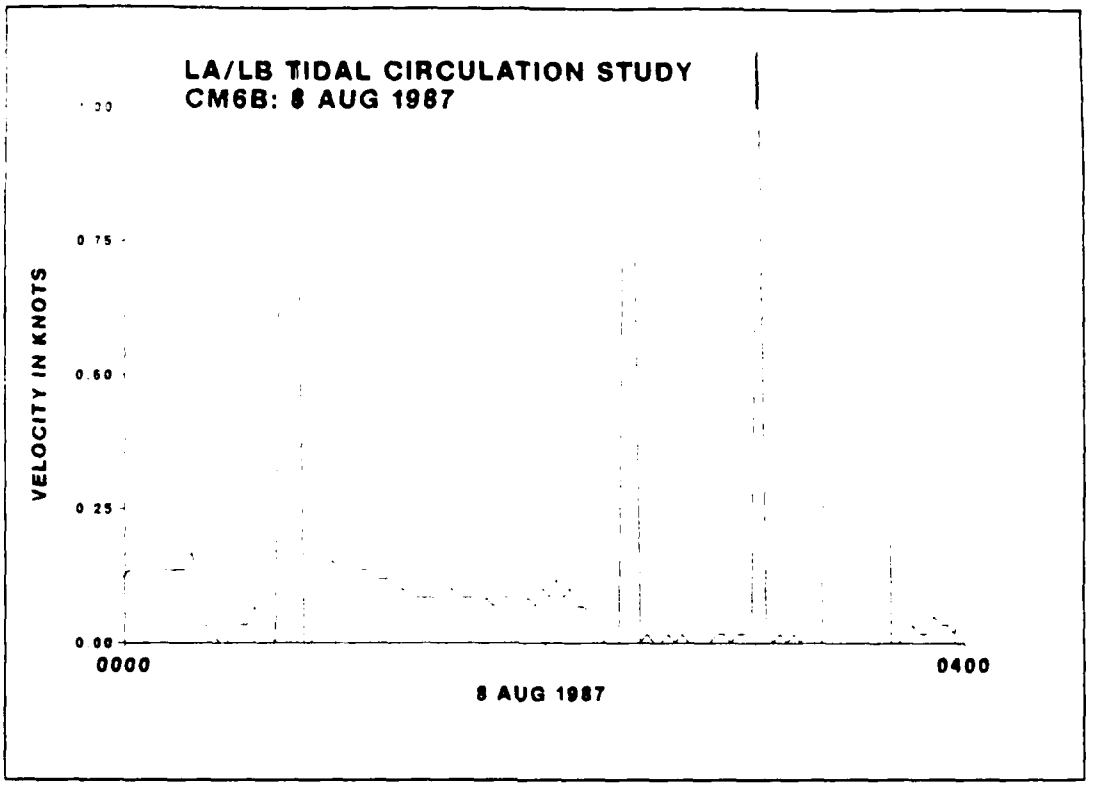
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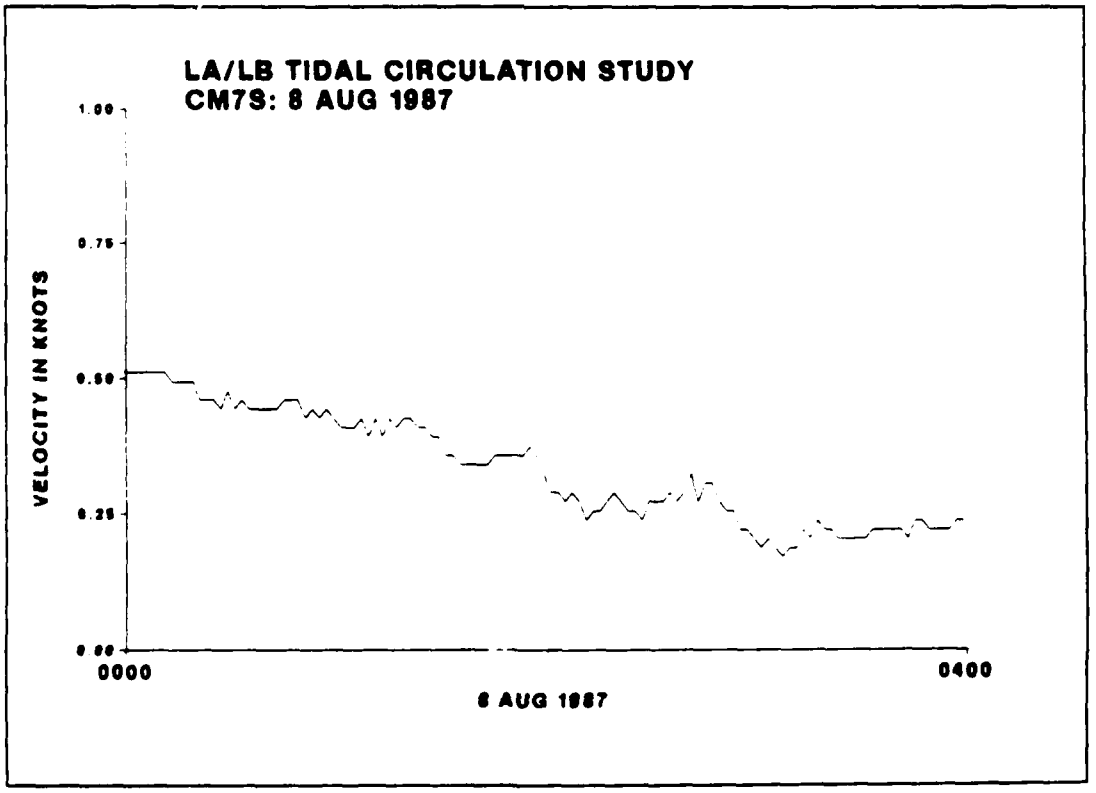
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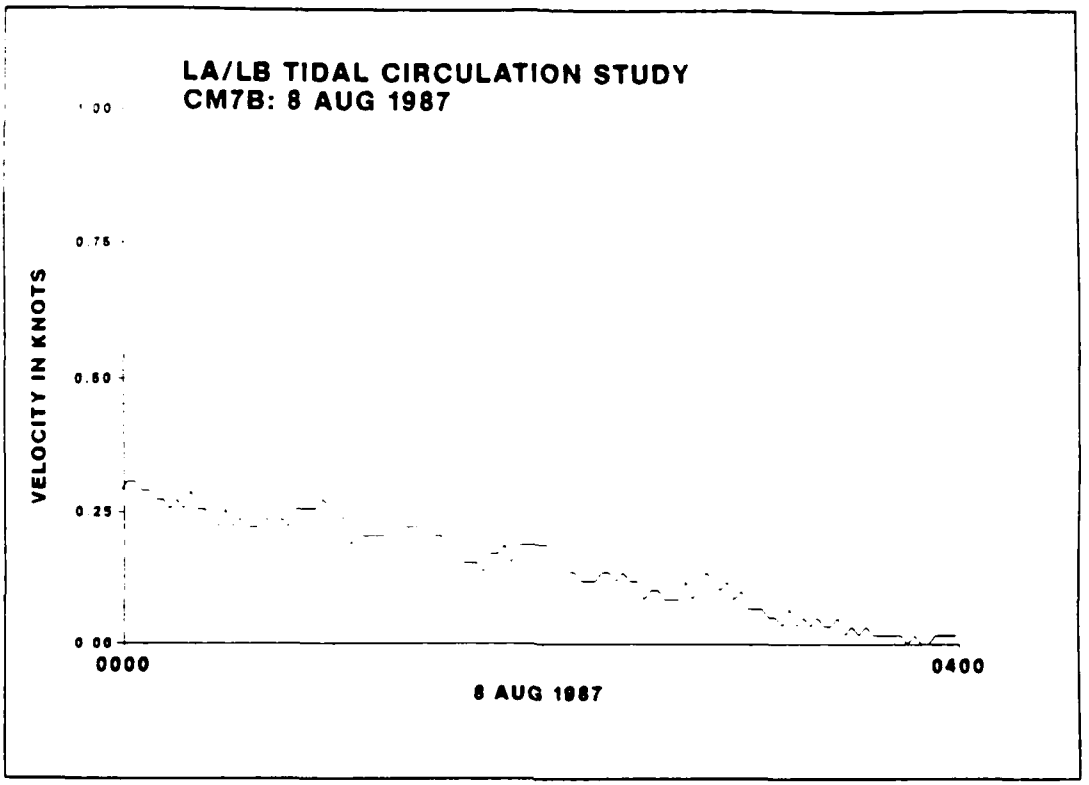
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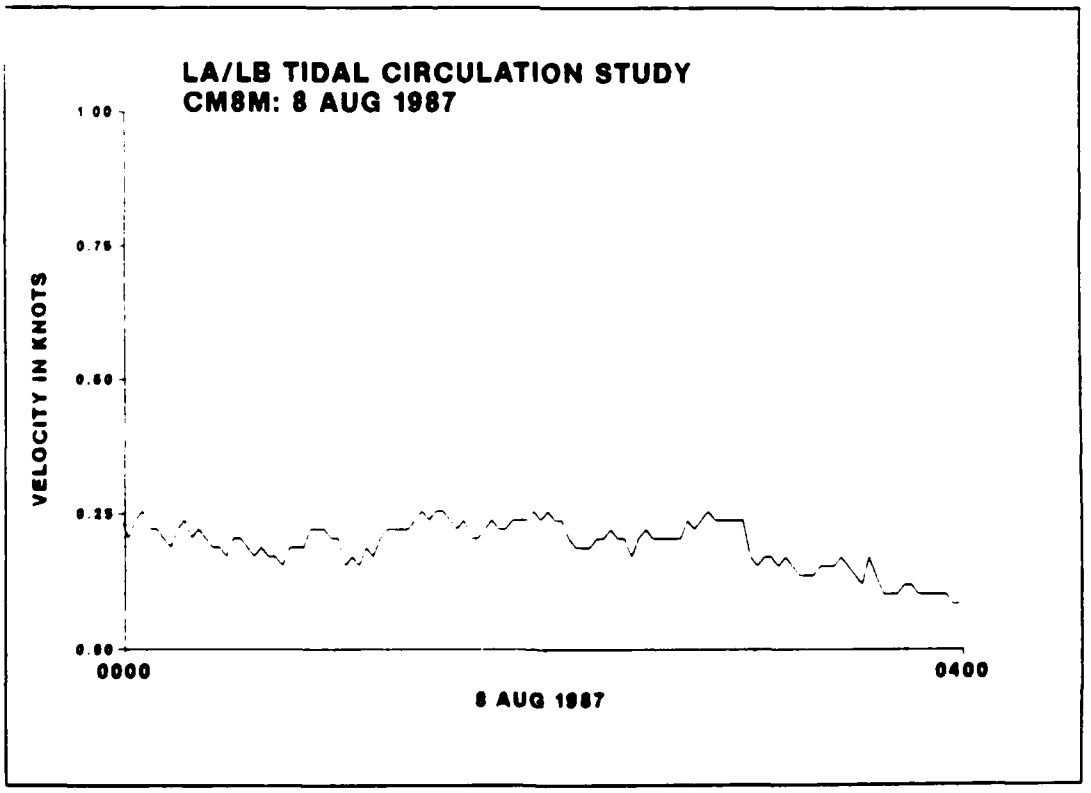
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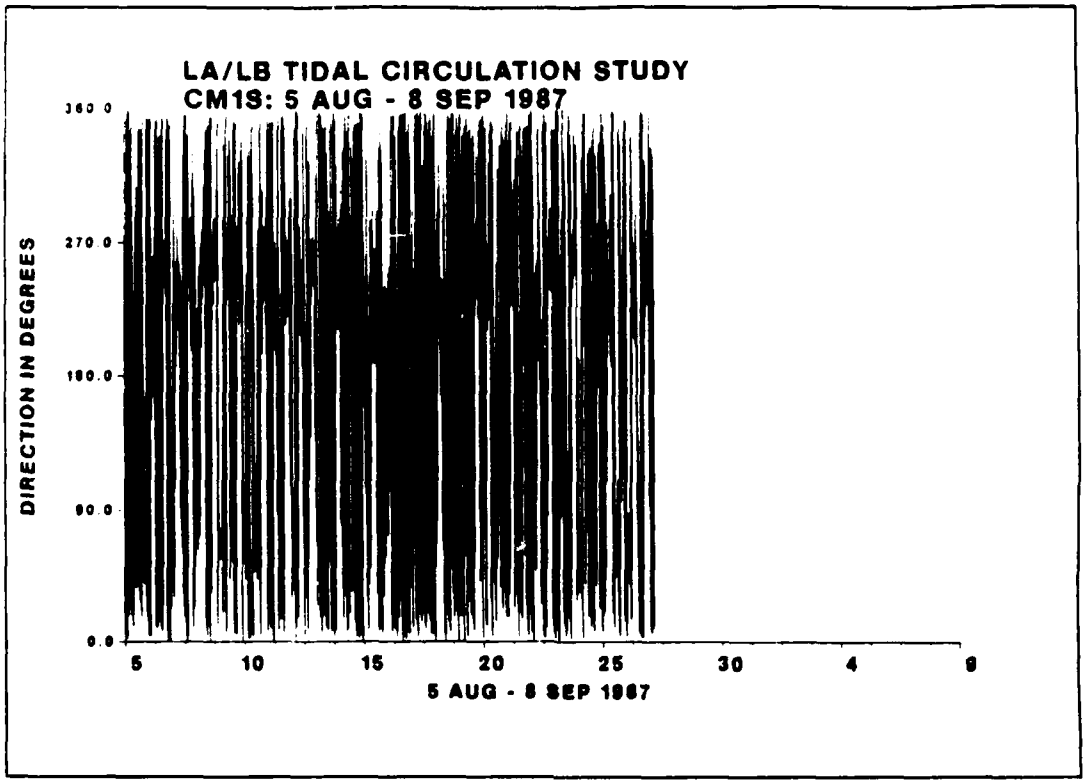
0.00
VELOCITY IN KNOTS
0000
0400
8 AUG 1987

APPENDIX G: CURRENT DIRECTION TIME SERIES PLOTS

This appendix contains plots of current direction time series. Time series are suffixed with S, M, and B, which stand for surface, middepth, and bottom, respectively.


LA/LB TIDAL CIRCULATION STUDY
CM1S: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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180.0
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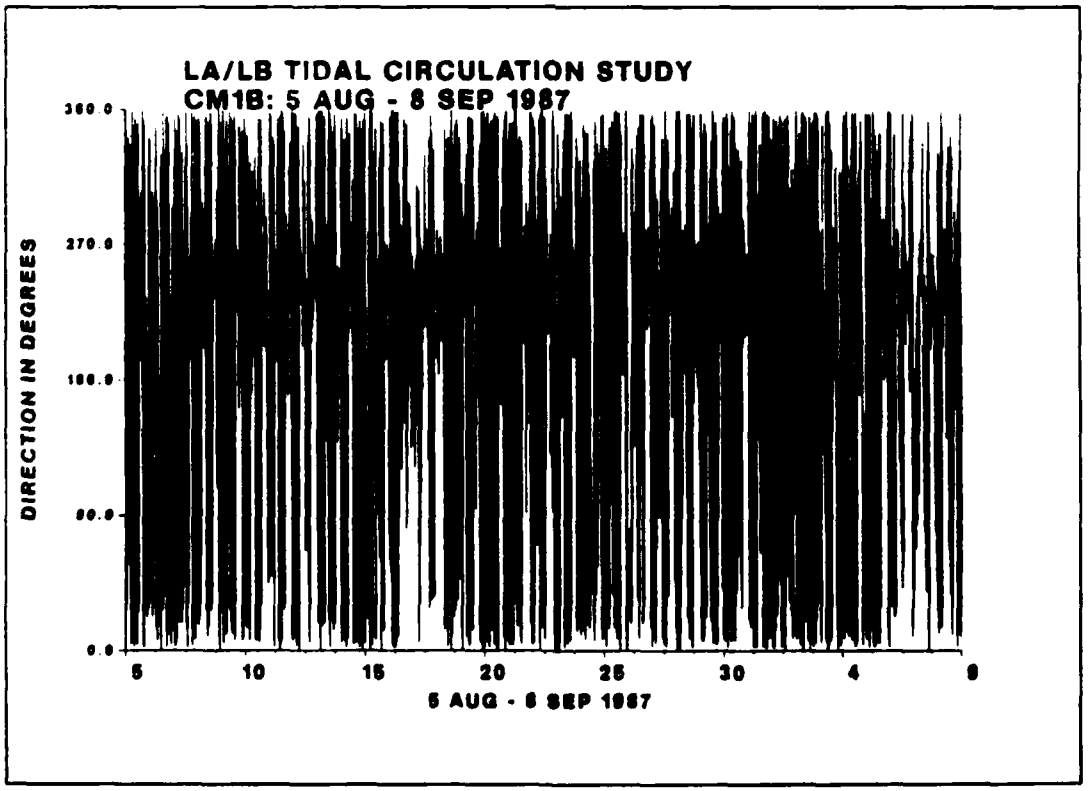
0.0
5
10
15
20
25
30
4
8
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM1B: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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10
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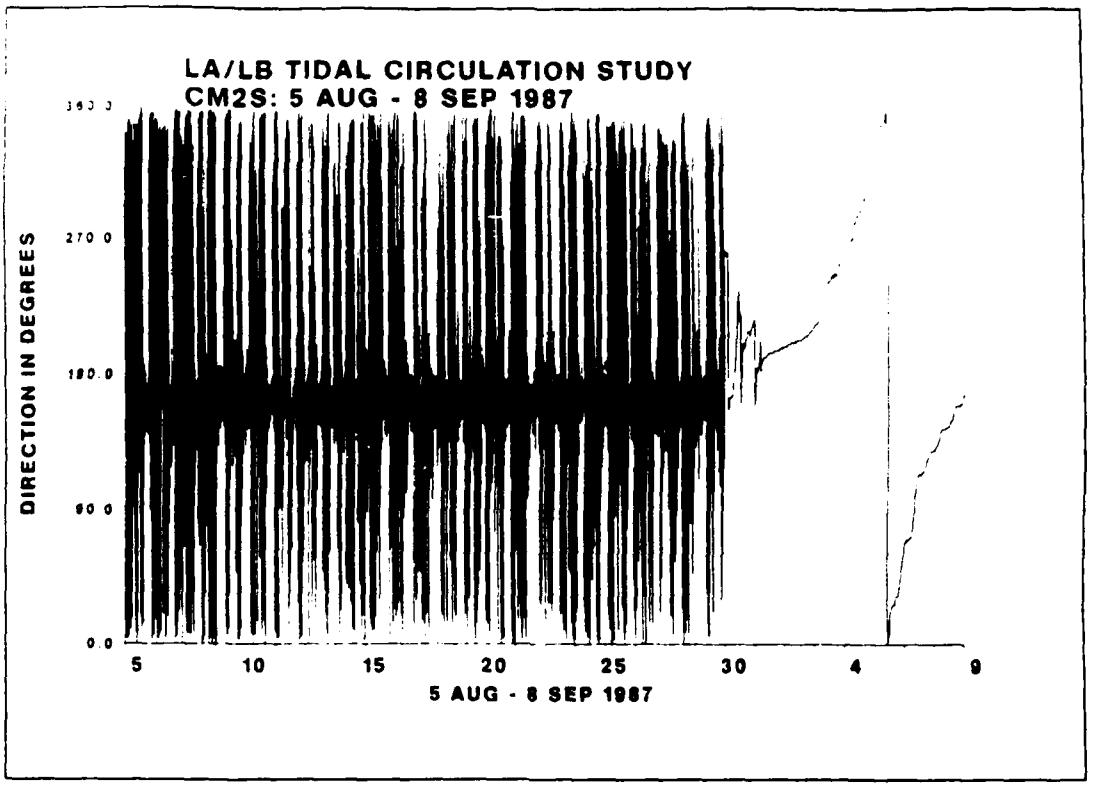
20
25
30
4
8
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM2S: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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20
25
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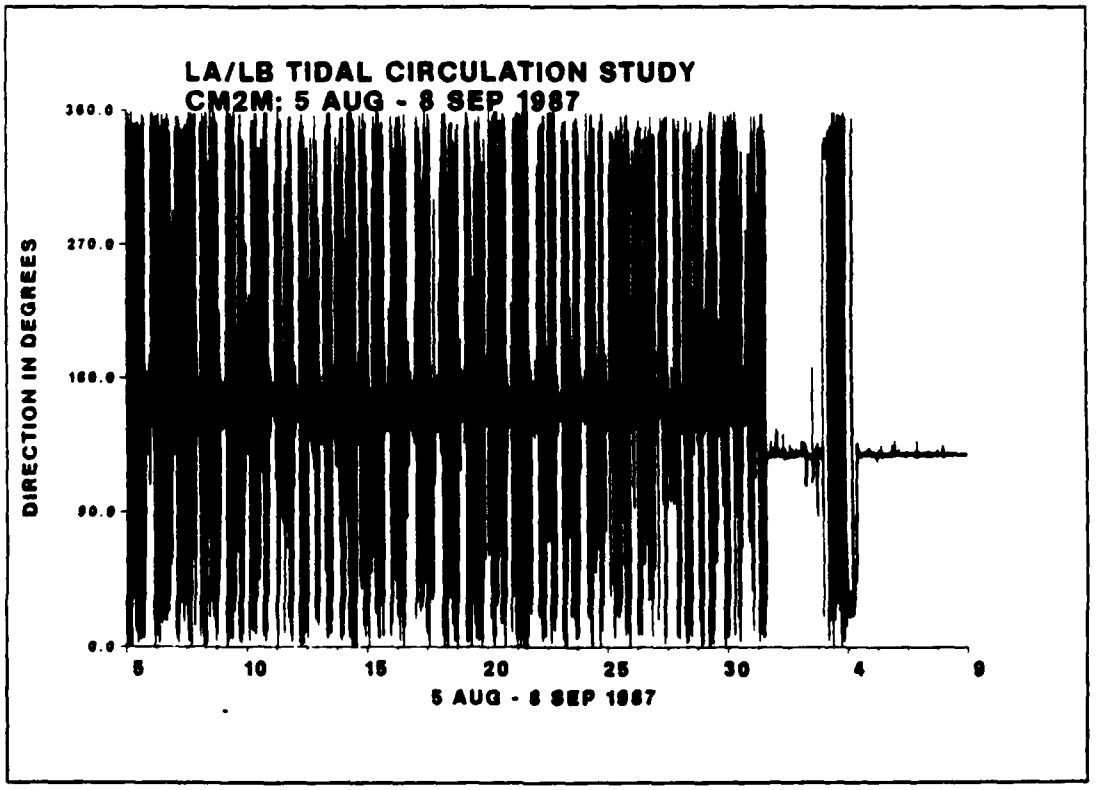
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
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DIRECTION IN DEGREES
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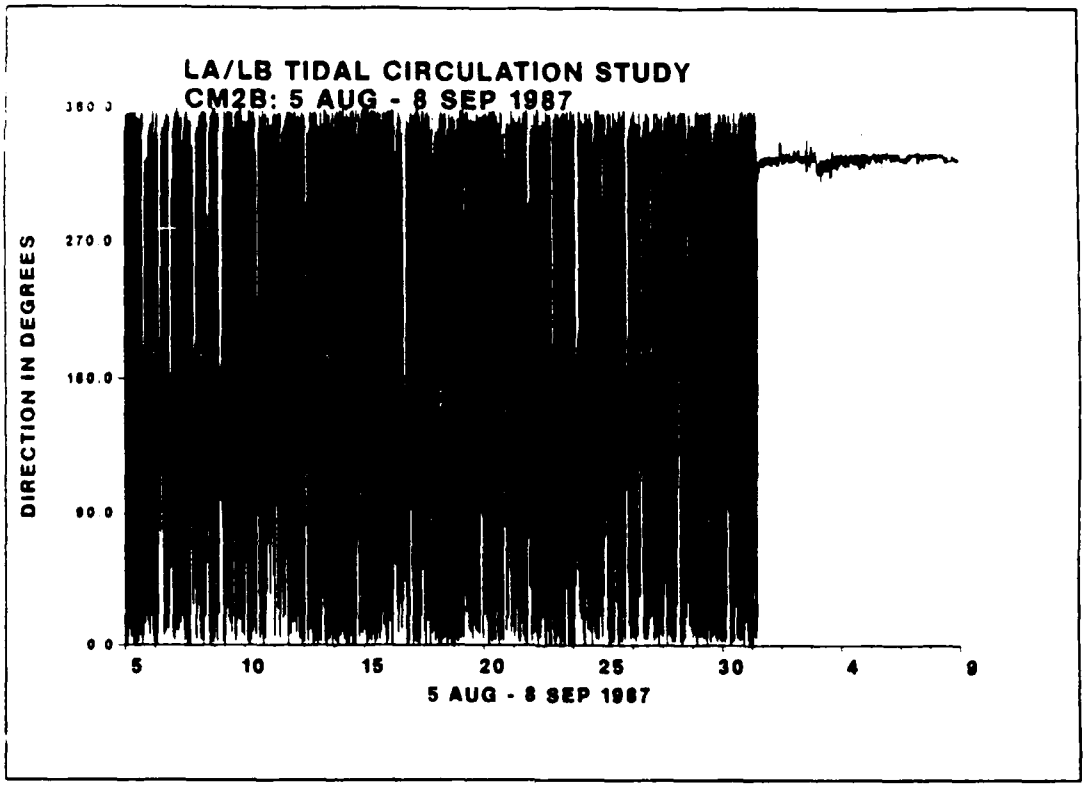
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM2B: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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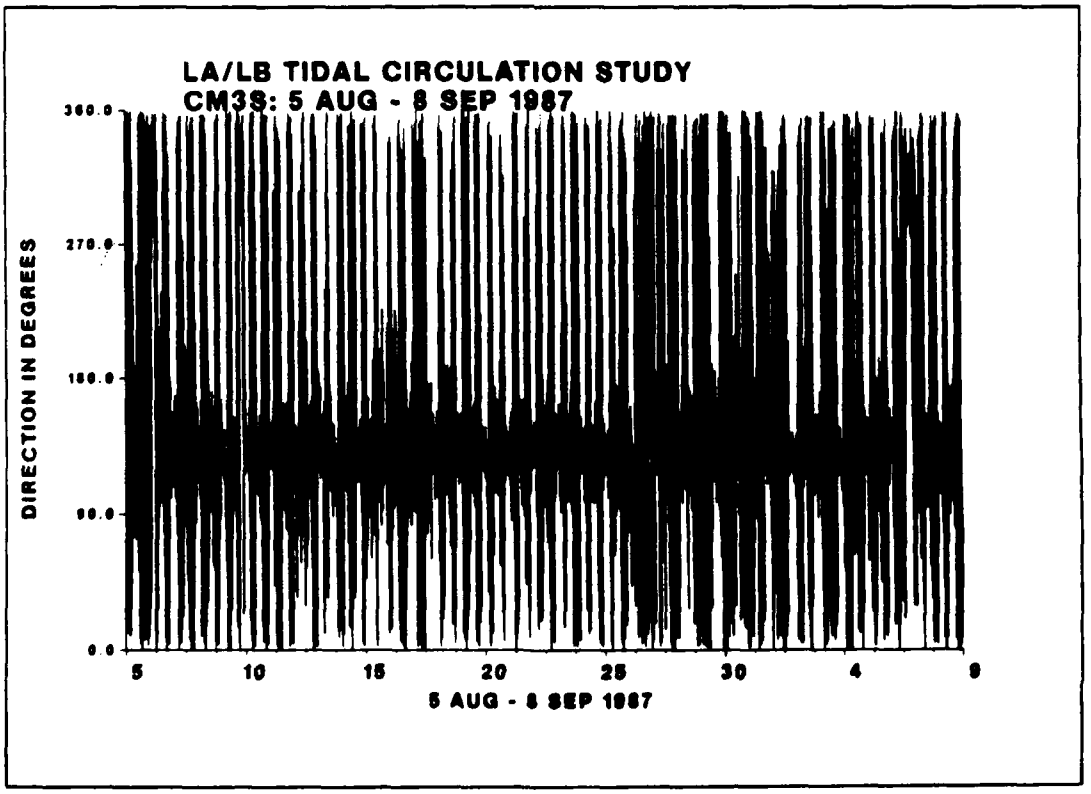
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
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DIRECTION IN DEGREES
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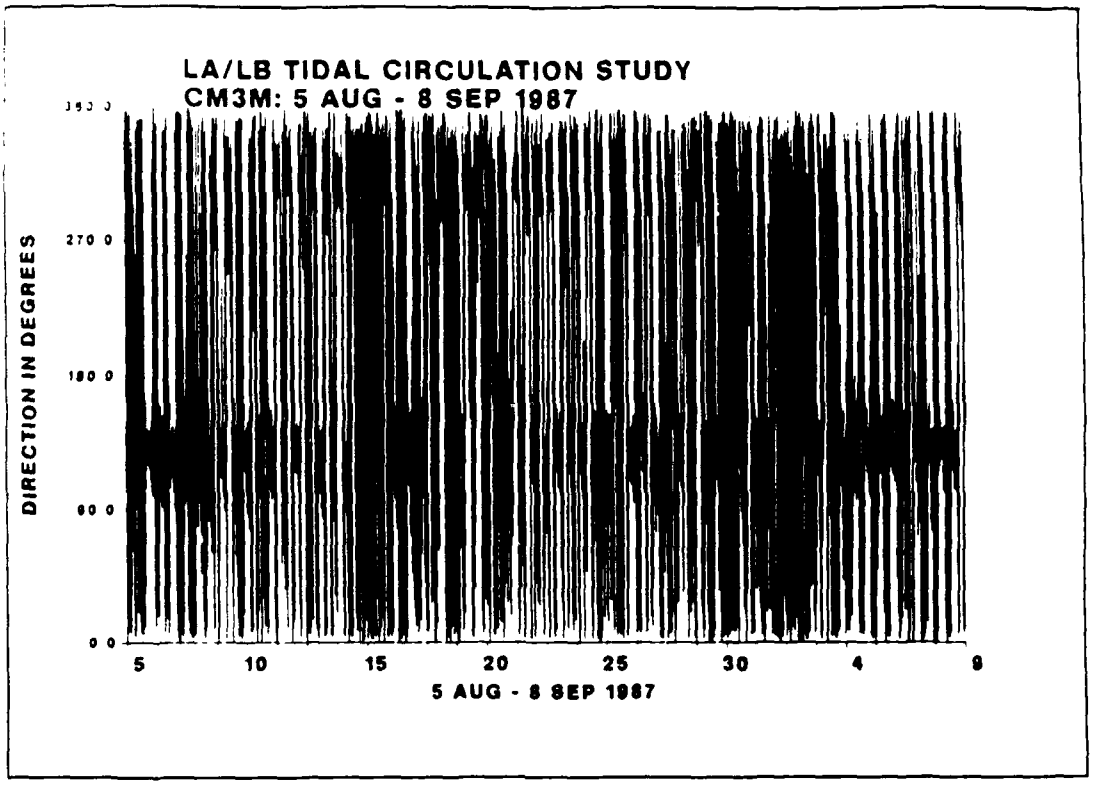
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
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10
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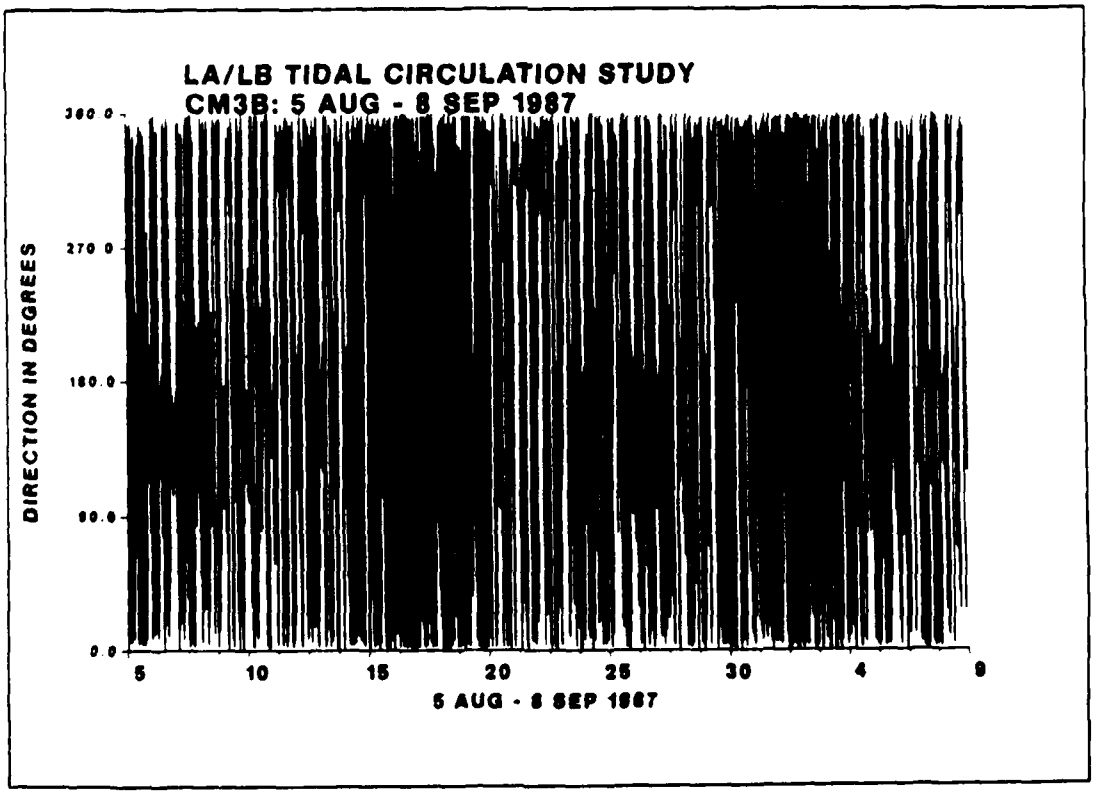
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM3B: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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25
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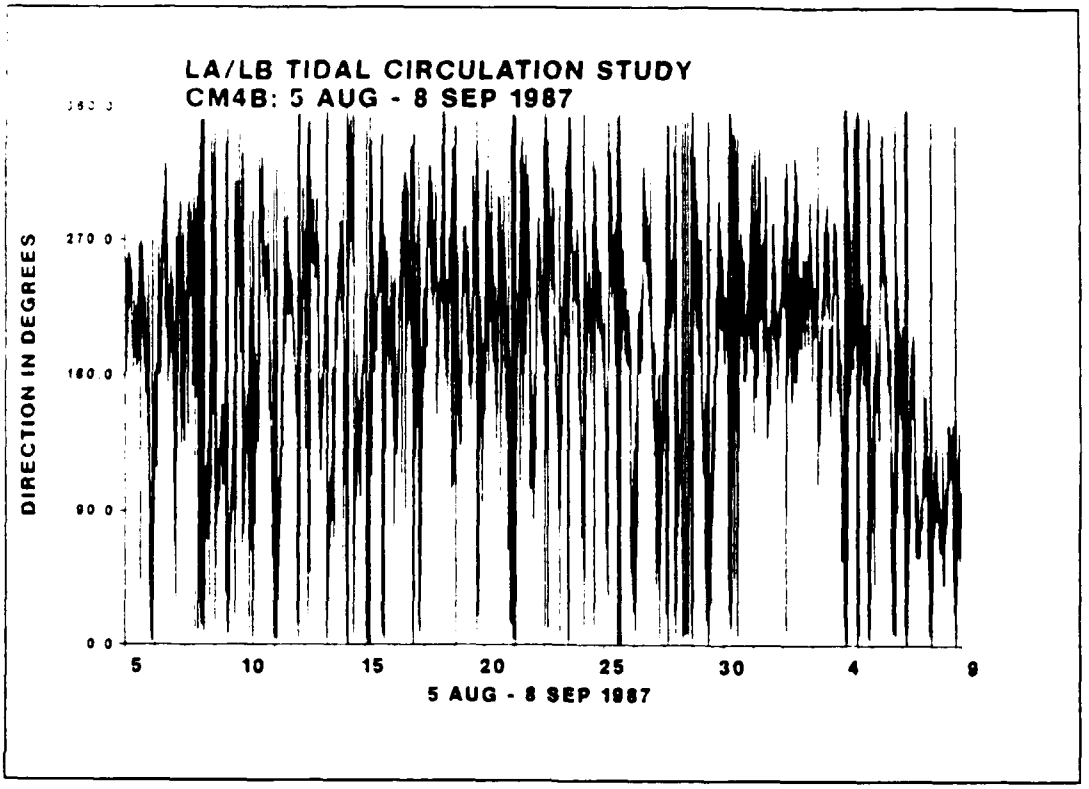
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
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DIRECTION IN DEGREES
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25
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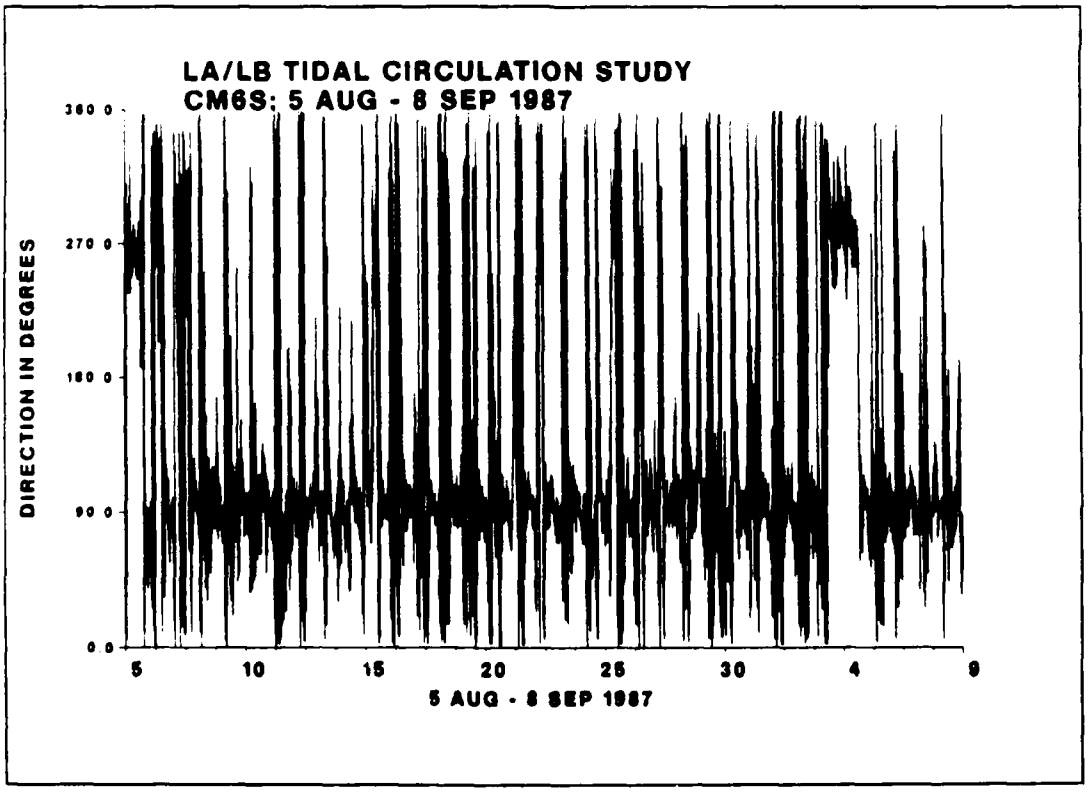
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
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DIRECTION IN DEGREES
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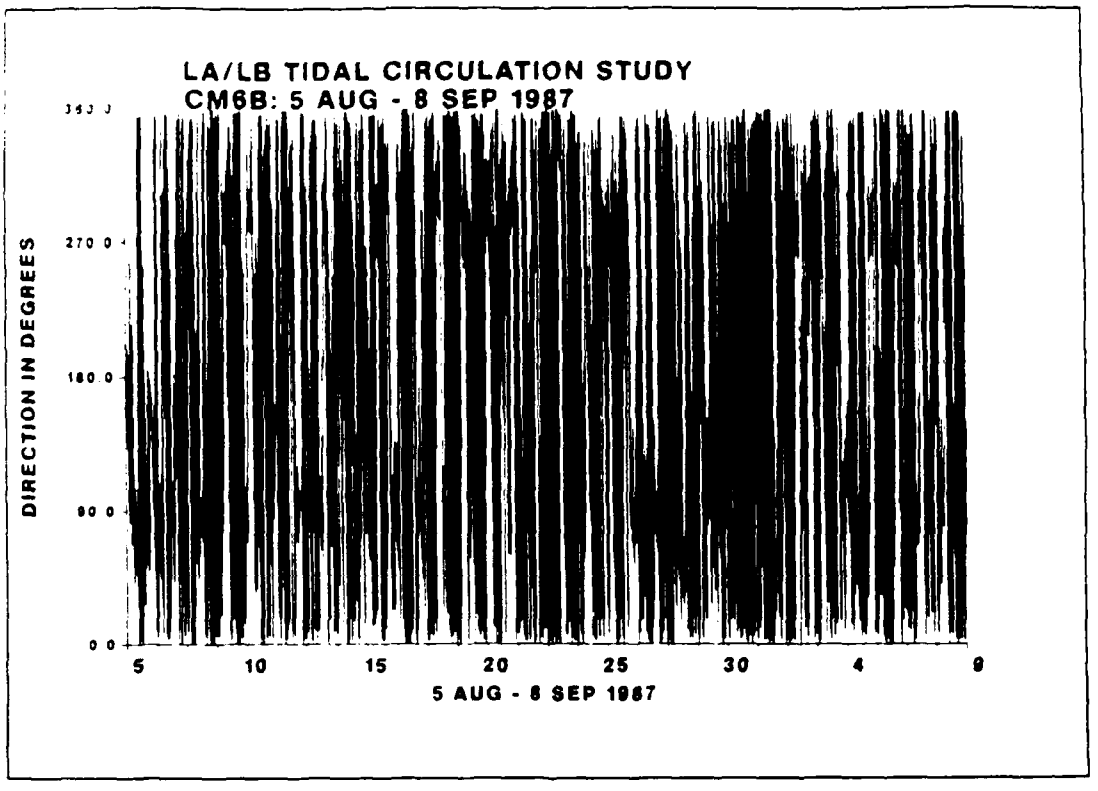
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM6B: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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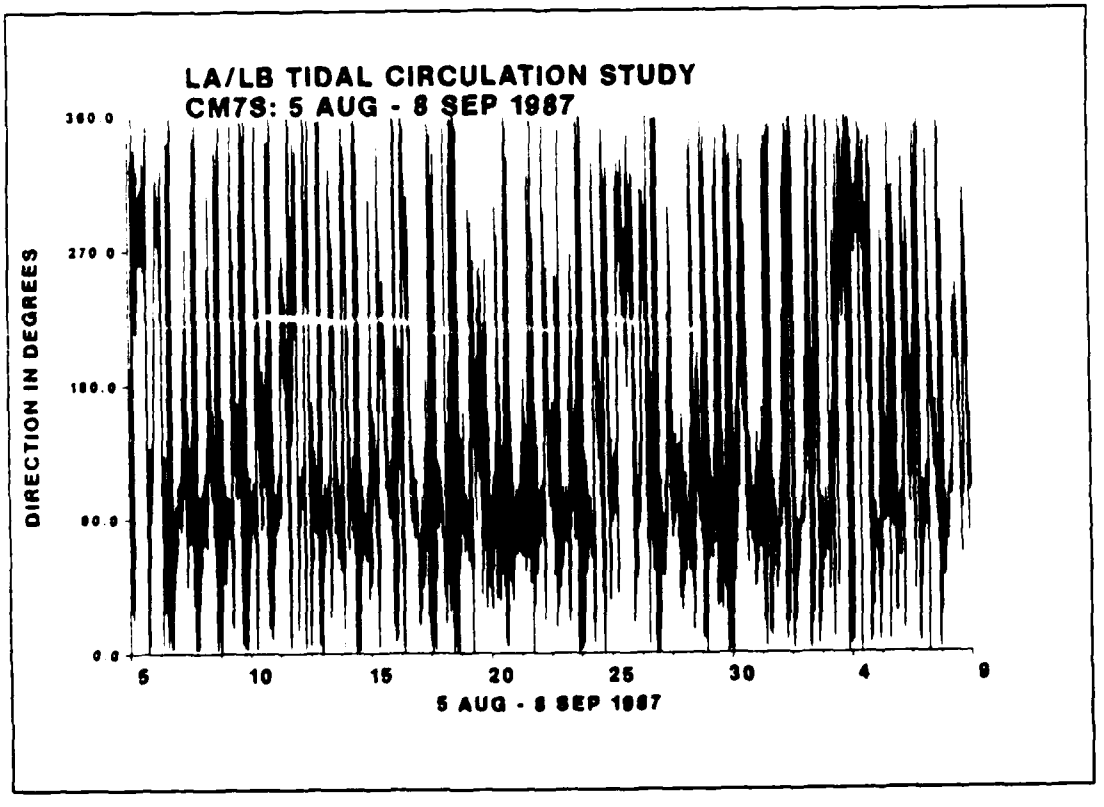
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM7S: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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10
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20
25
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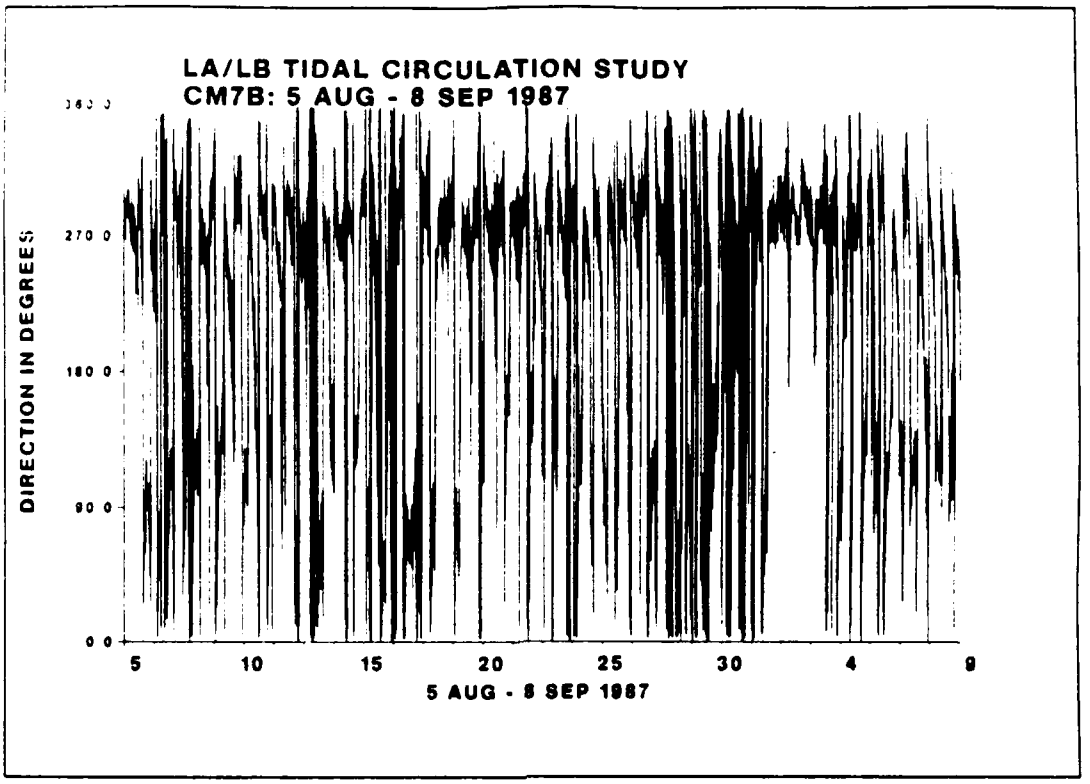
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM7B: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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180.0
90.0
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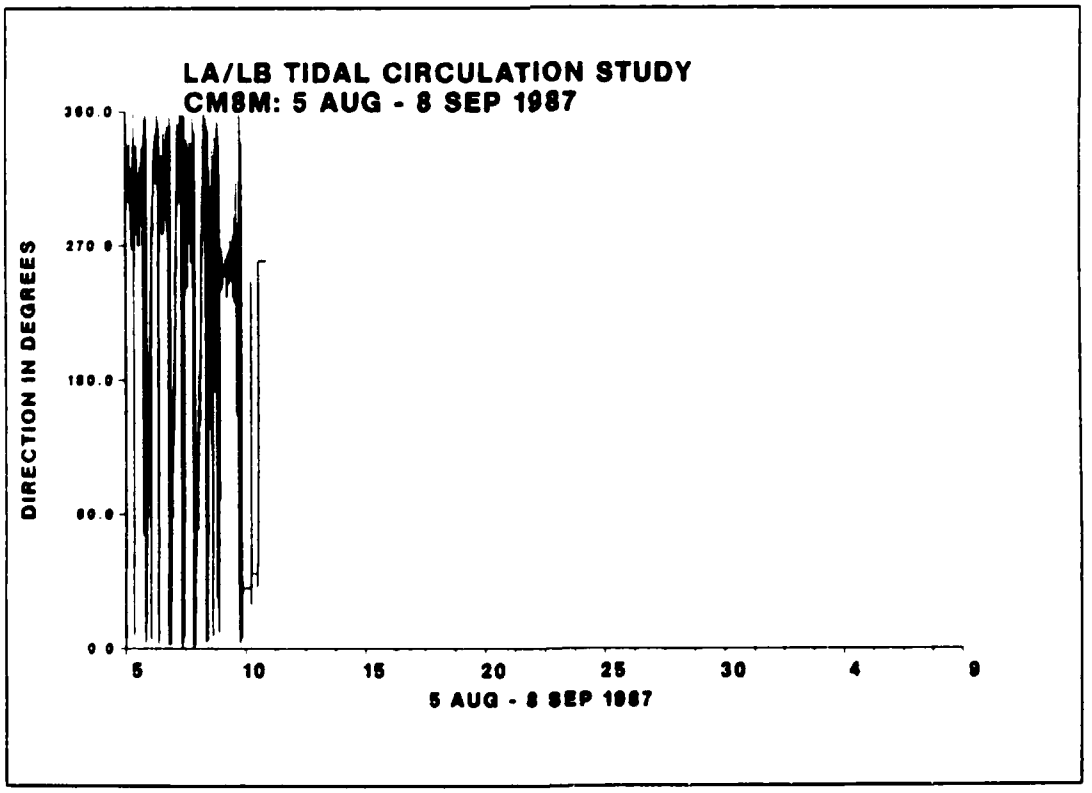
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
CM8M: 5 AUG - 8 SEP 1987
DIRECTION IN DEGREES
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180.0
90.0
0.0
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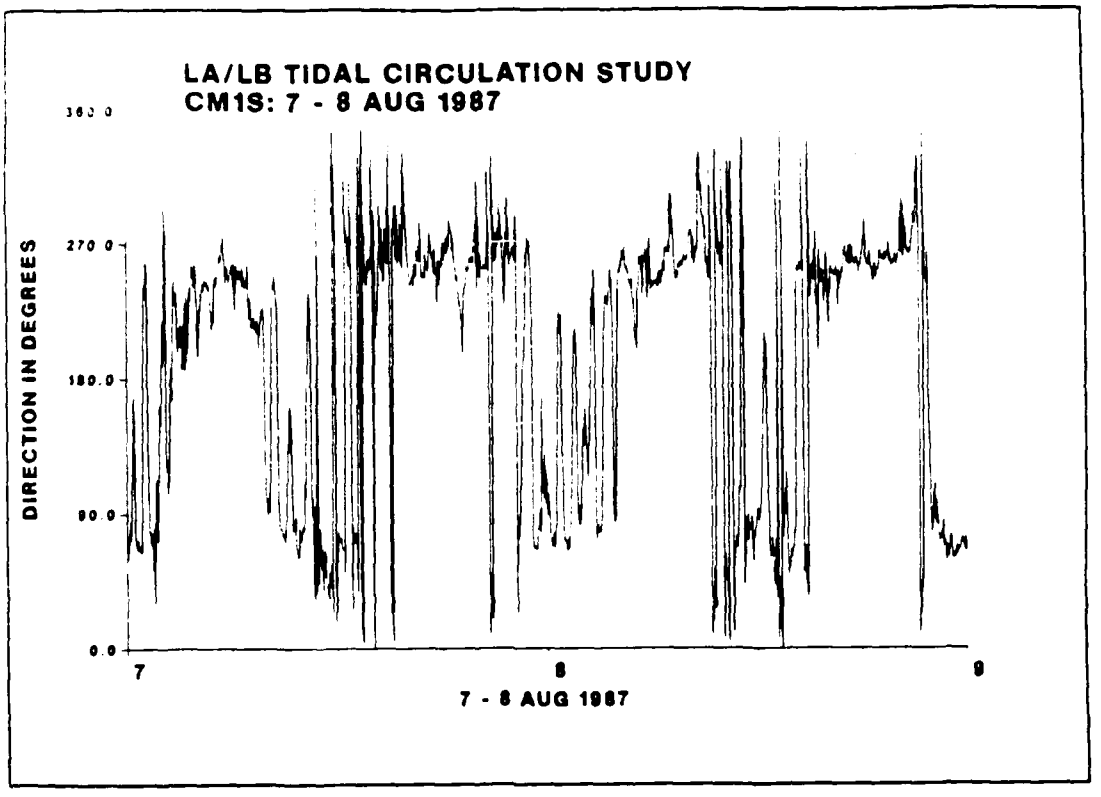
10
15
20
25
30
4
9
5 AUG - 8 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
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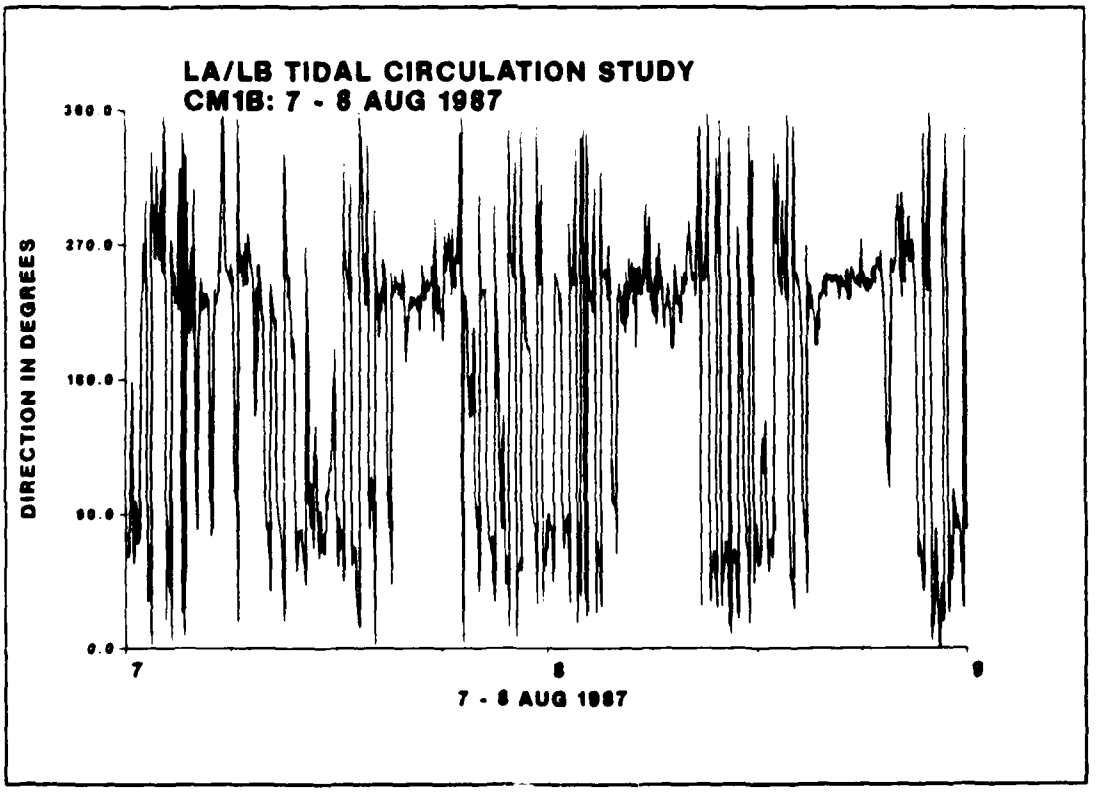
180.0
90.0
0.0
DIRECTION IN DEGREES
7
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM1B: 7 - 8 AUG 1987
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180.0
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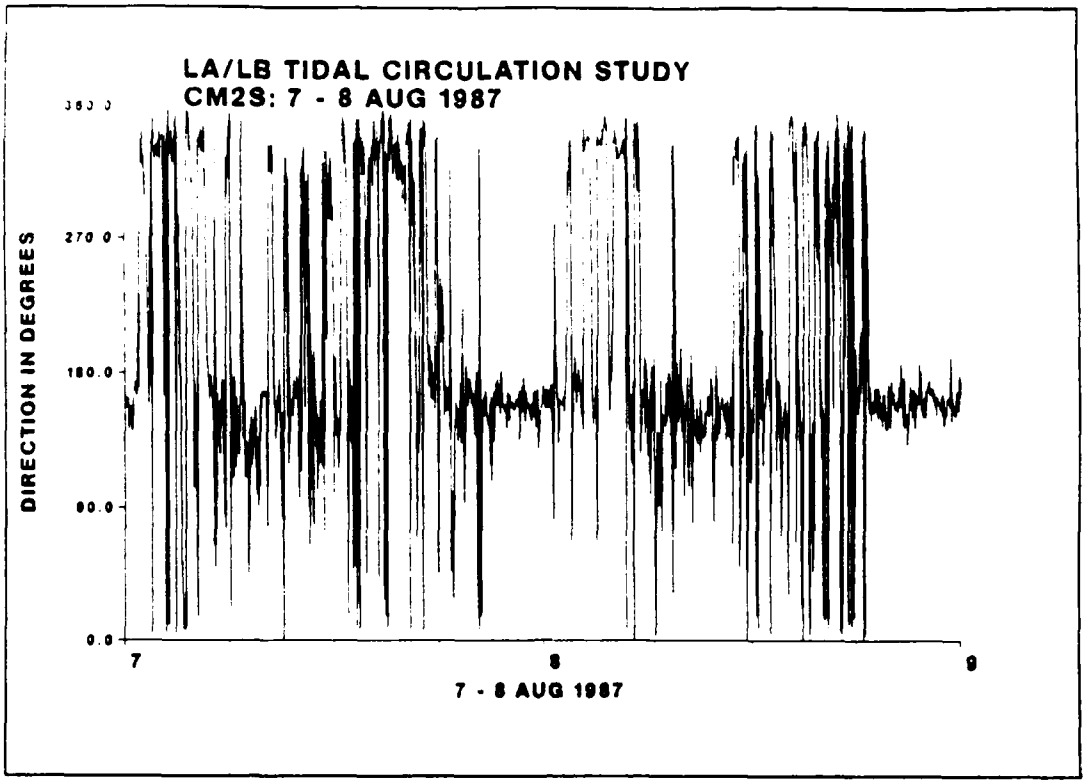
0.0
DIRECTION IN DEGREES
7
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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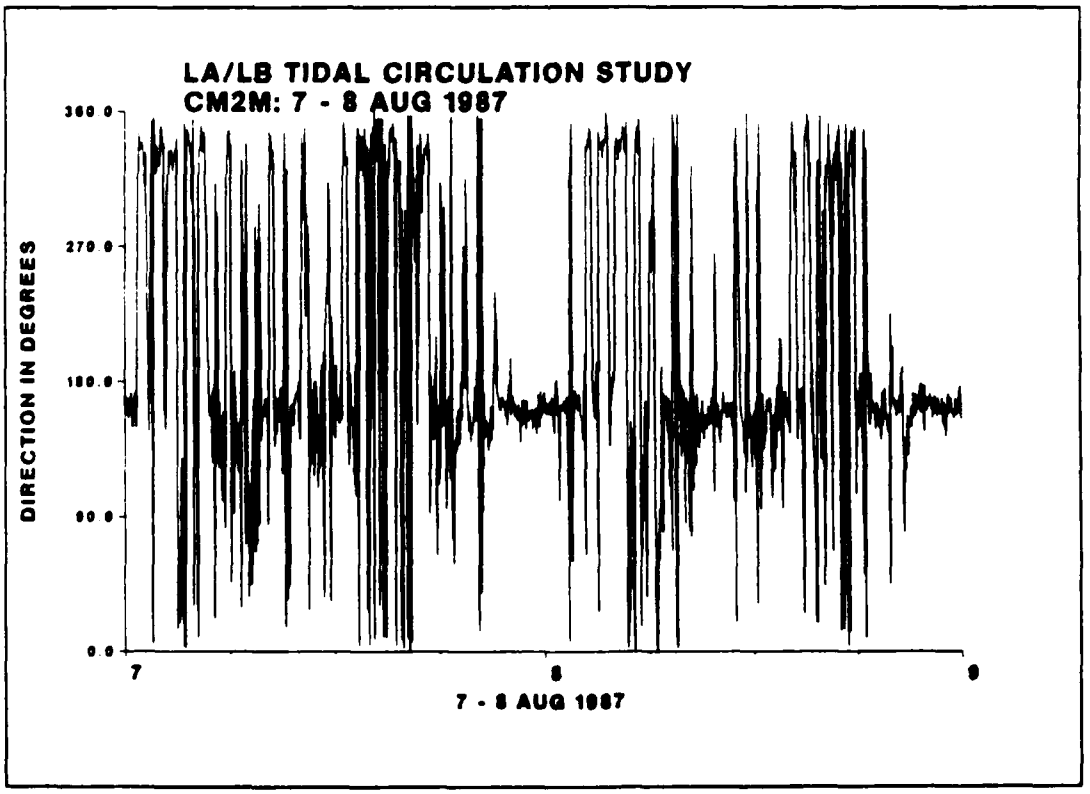
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM2M: 7 - 8 AUG 1987
DIRECTION IN DEGREES
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180.0
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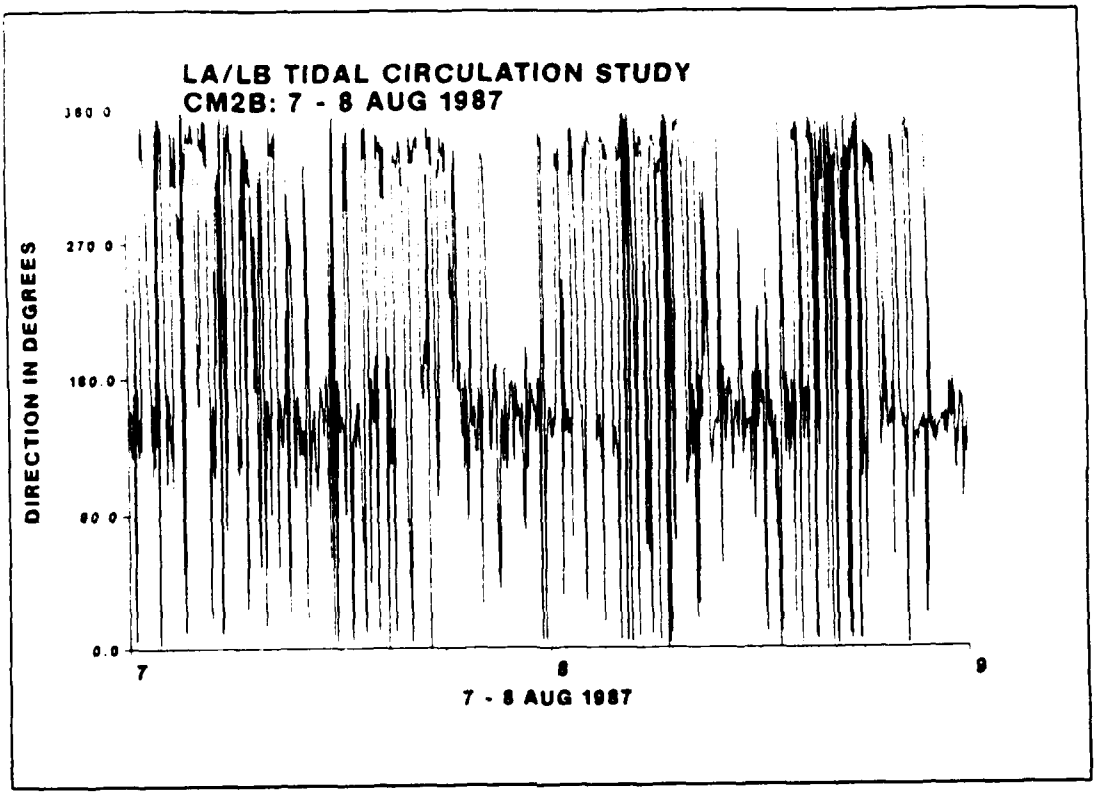
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM2B: 7 - 8 AUG 1987
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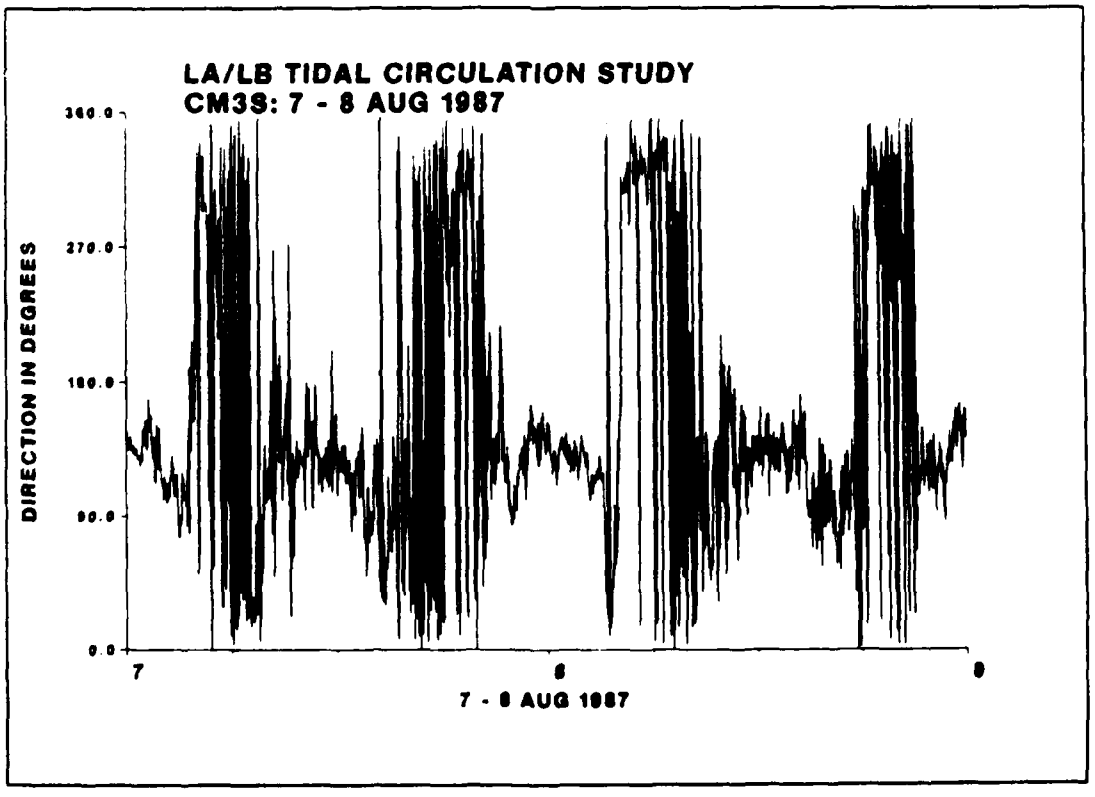
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
7
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM3S: 7 - 8 AUG 1987
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180.0
90.0
0.0
DIRECTION IN DEGREES
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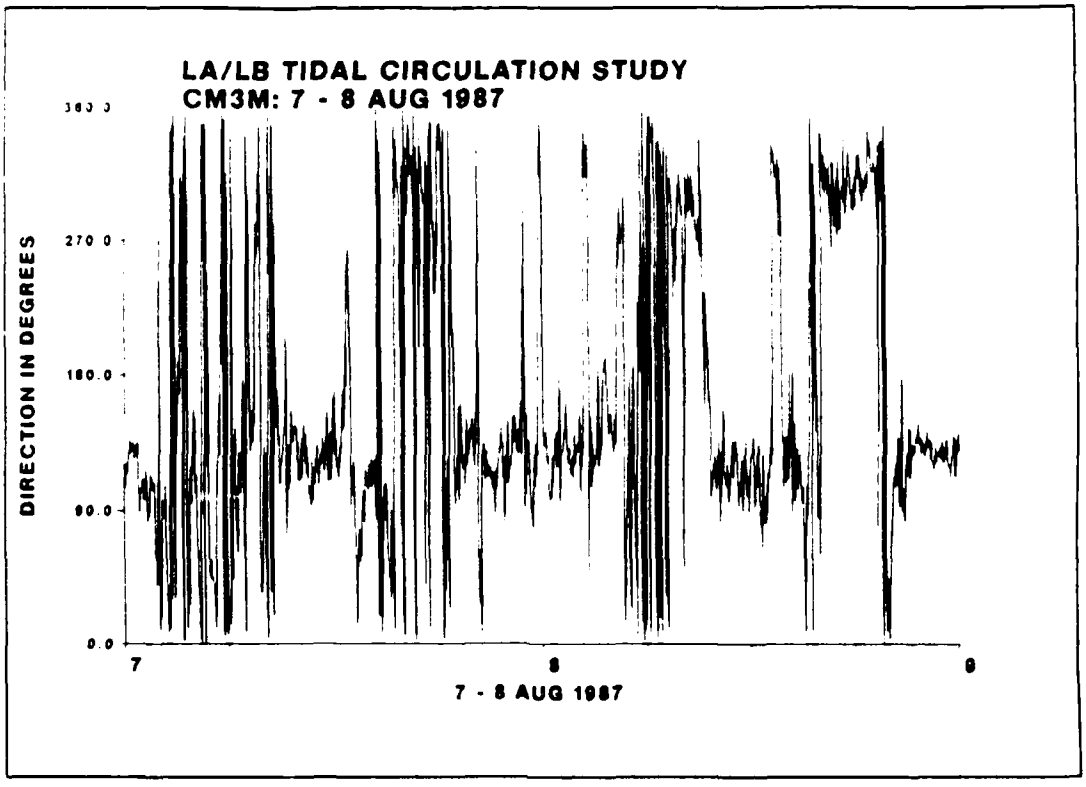
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM3M: 7 - 8 AUG 1987
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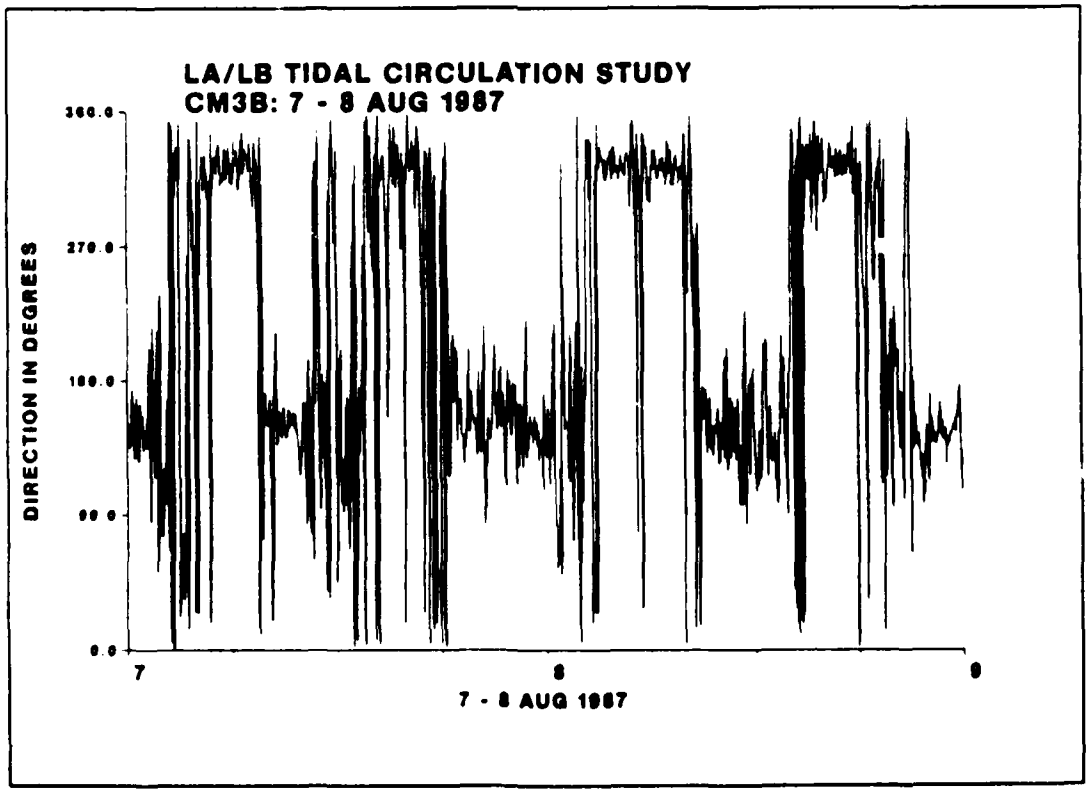
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM3B: 7 - 8 AUG 1987
DIRECTION IN DEGREES
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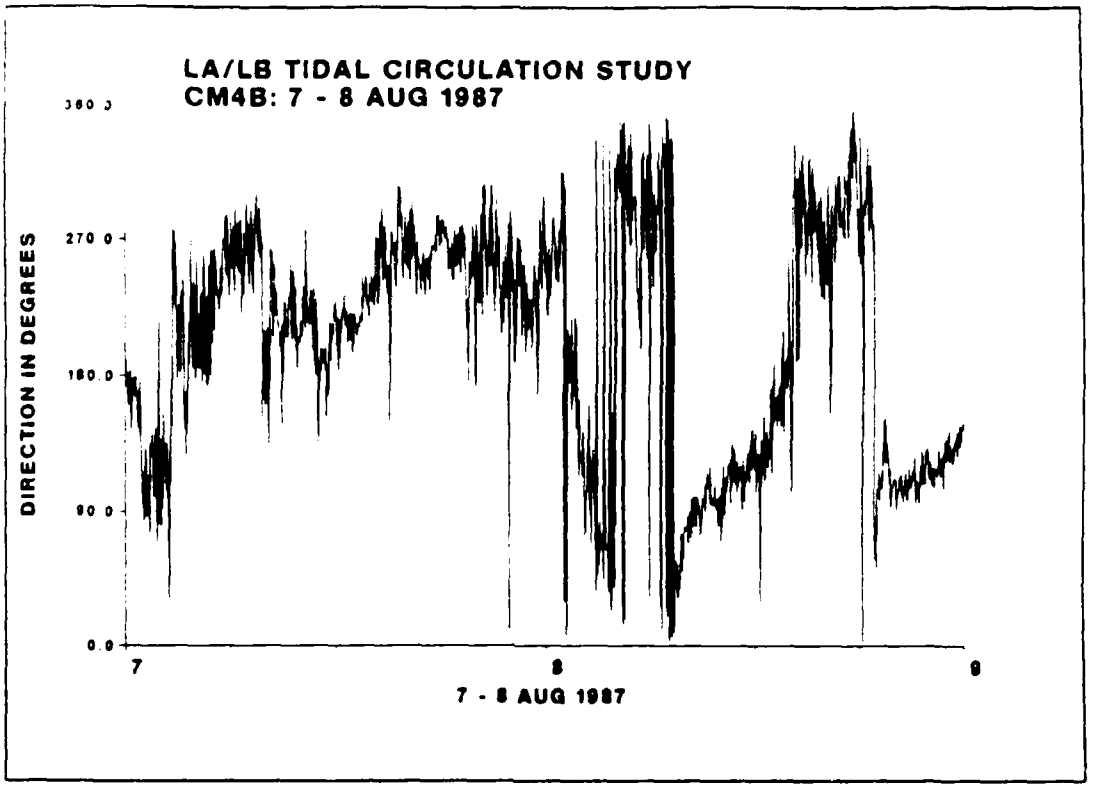
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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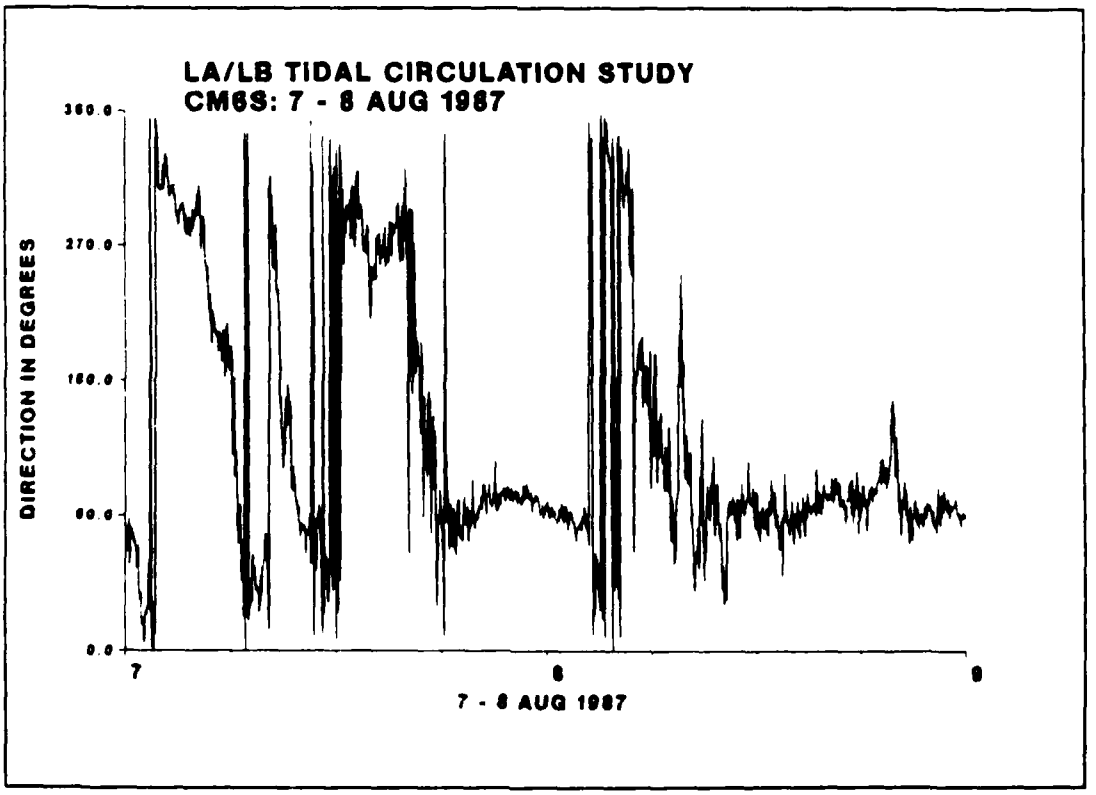
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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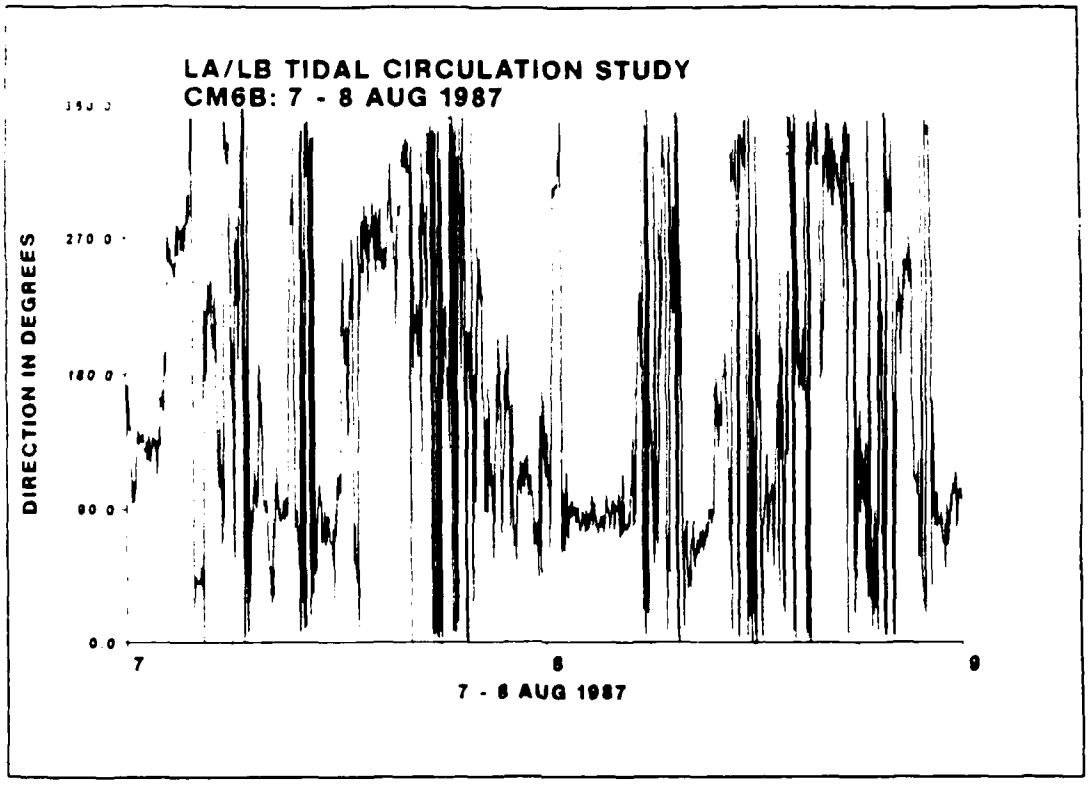
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM6B: 7 - 8 AUG 1987
DIRECTION IN DEGREES
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90.0
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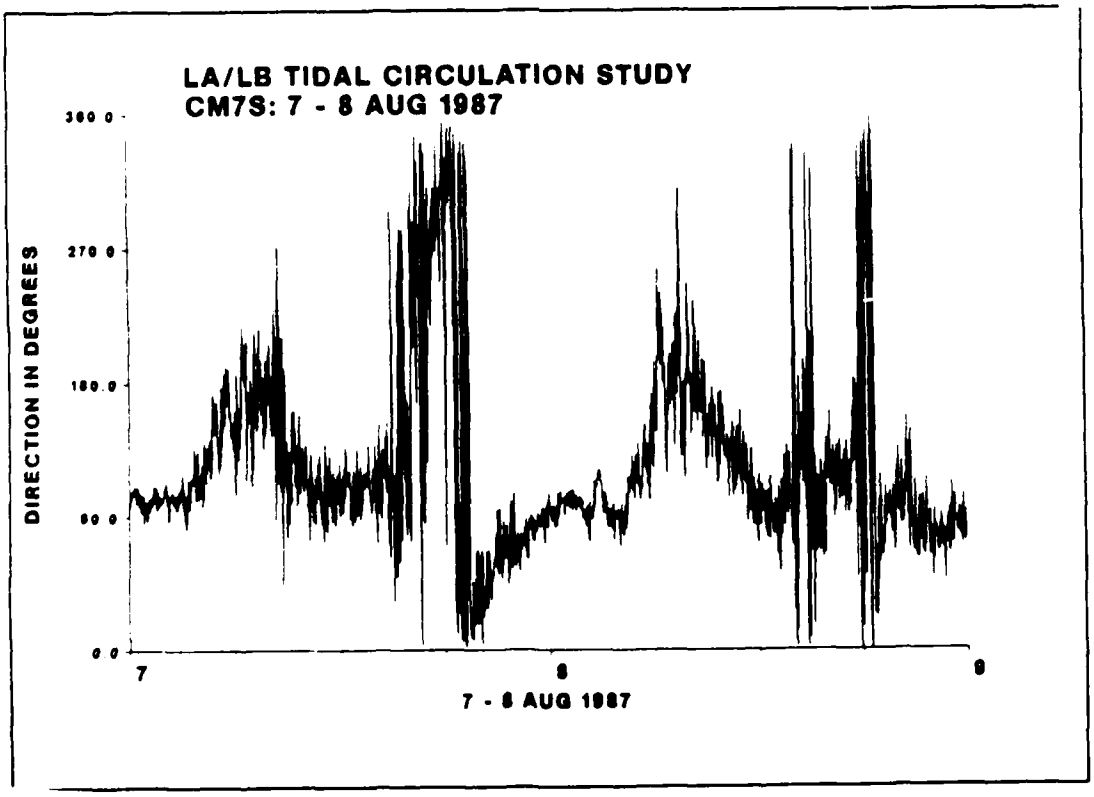
7
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM7S: 7 - 8 AUG 1987
DIRECTION IN DEGREES
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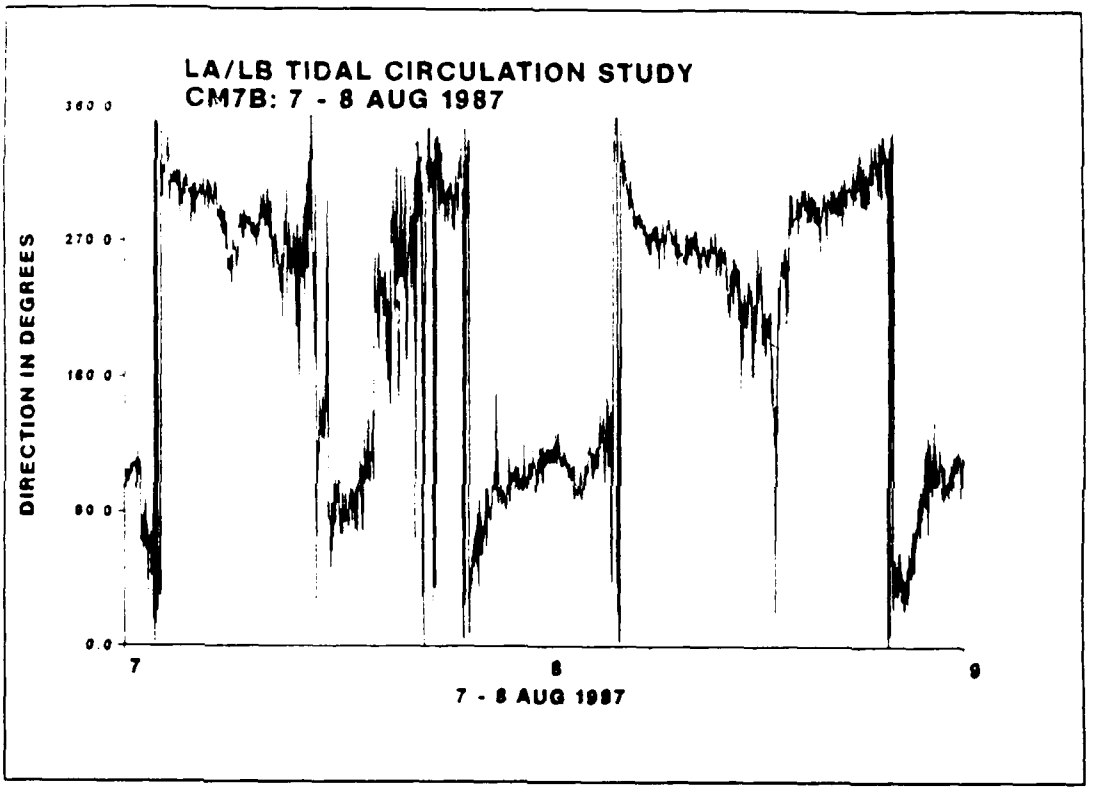
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM7B: 7 - 8 AUG 1987
DIRECTION IN DEGREES
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180.0
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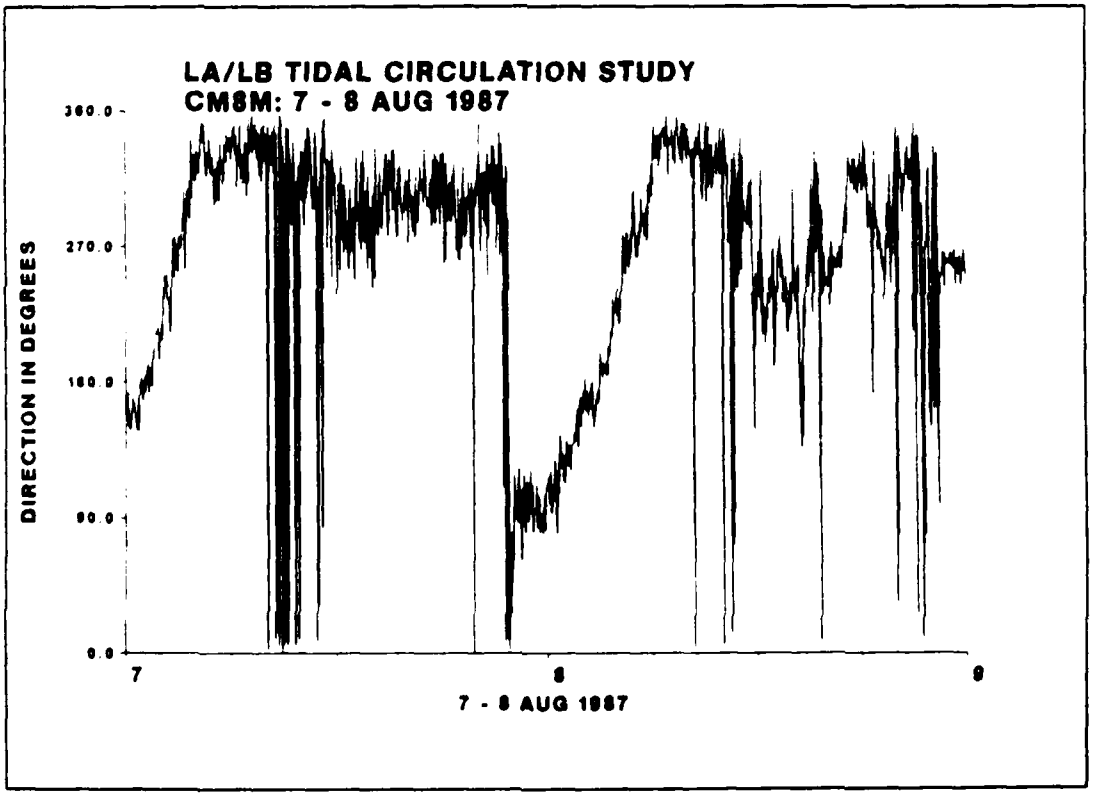
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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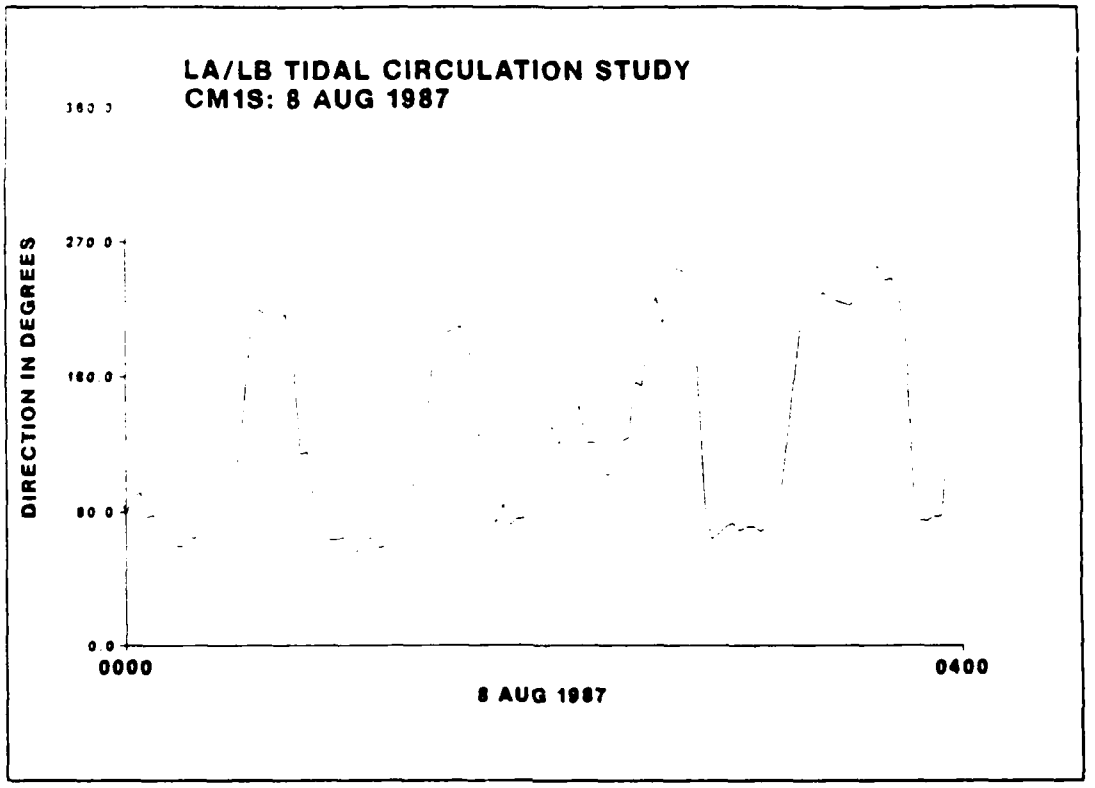
8
9
7 - 8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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DIRECTION IN DEGREES
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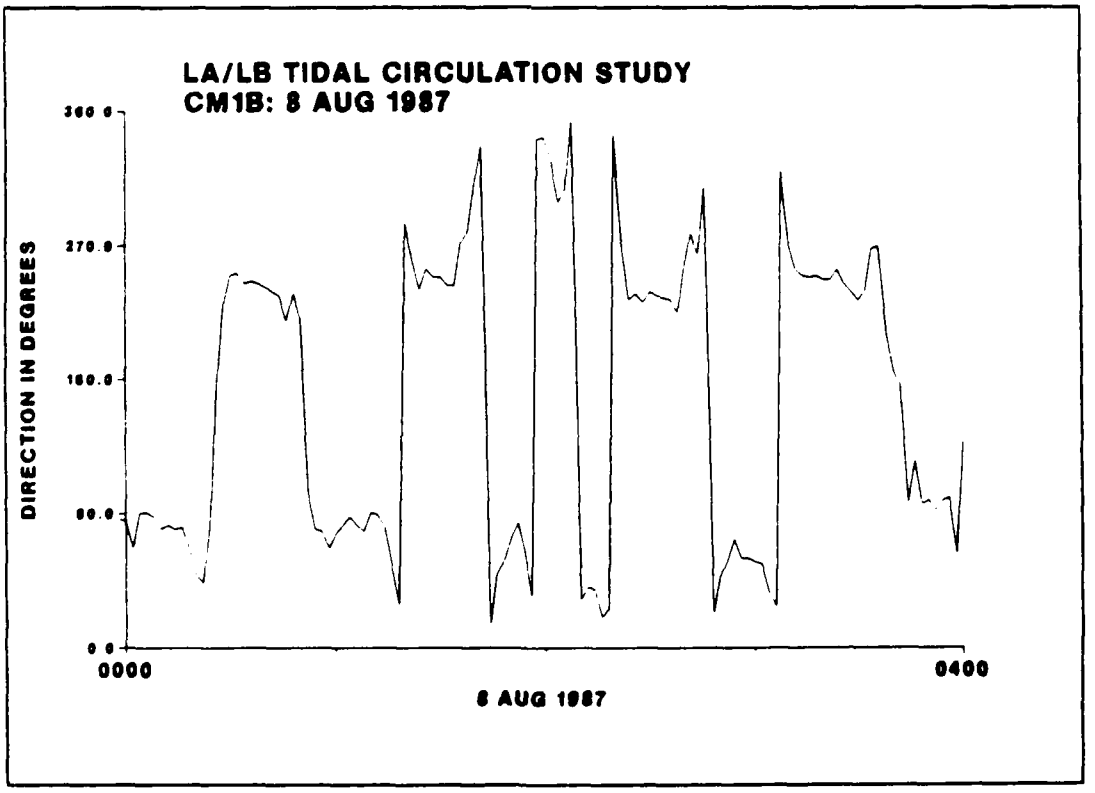
90.0
0.0
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM1B: 8 AUG 1987
DIRECTION IN DEGREES
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90.0
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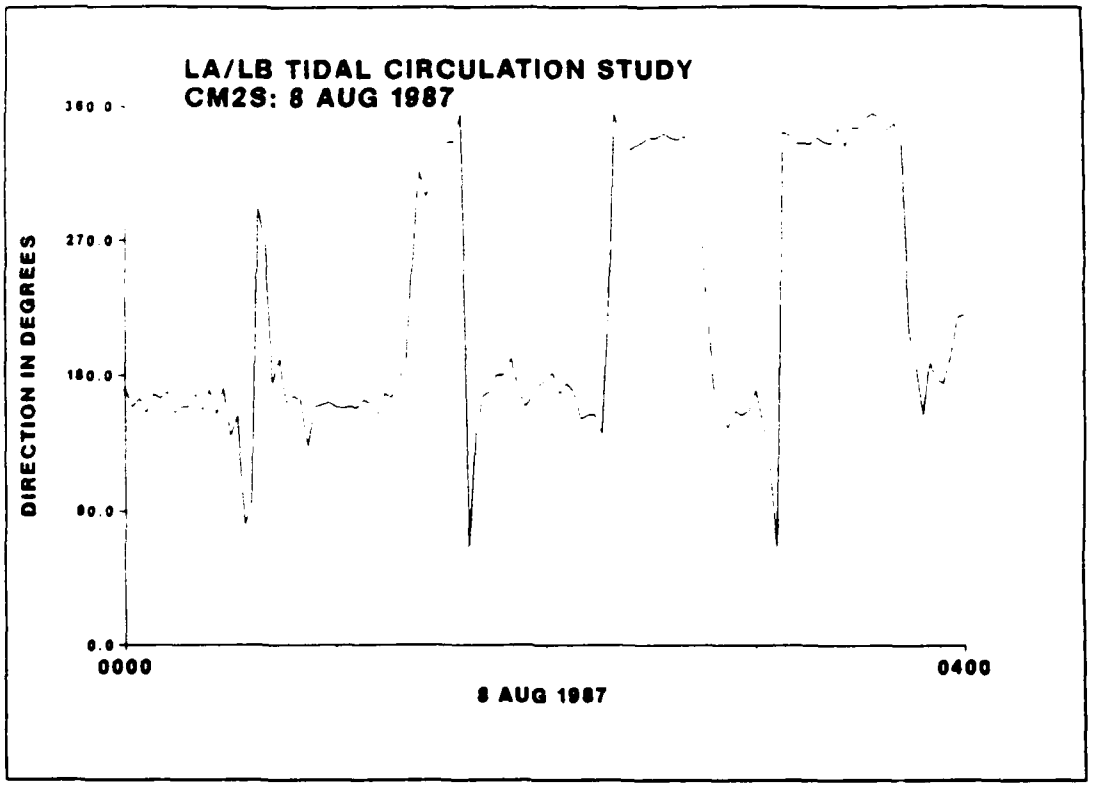
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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90.0
0.0
DIRECTION IN DEGREES
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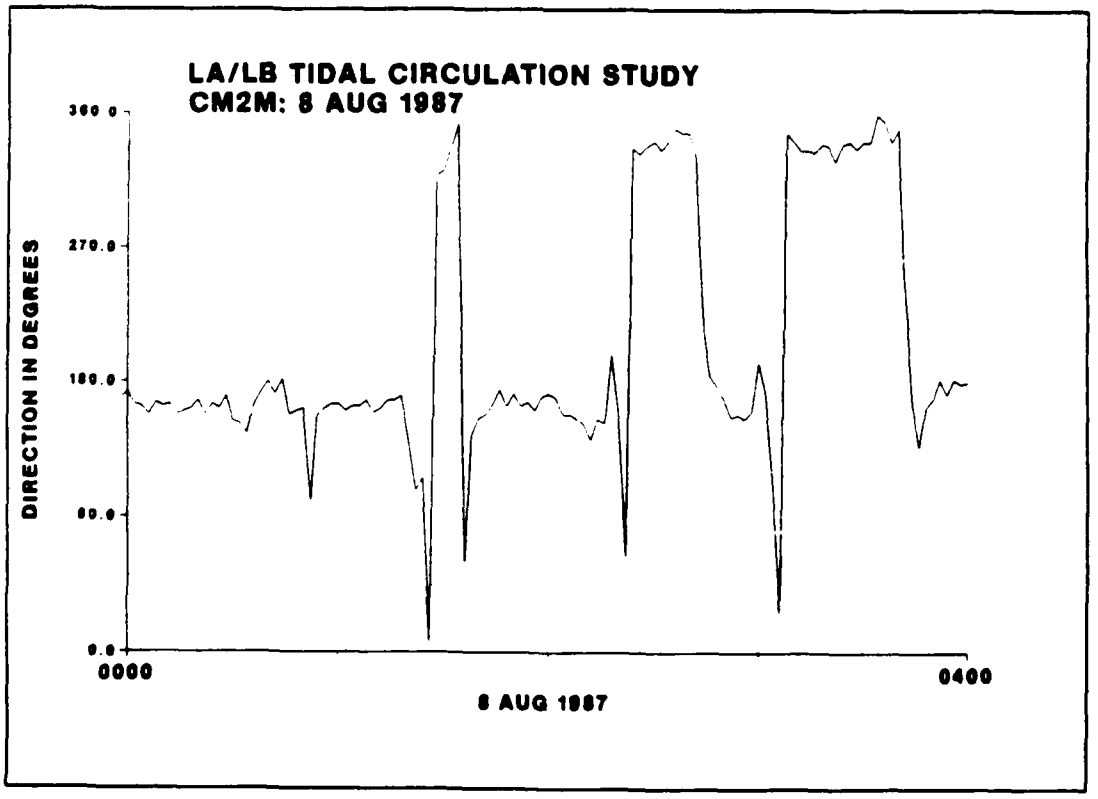
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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180.0
90.0
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DIRECTION IN DEGREES
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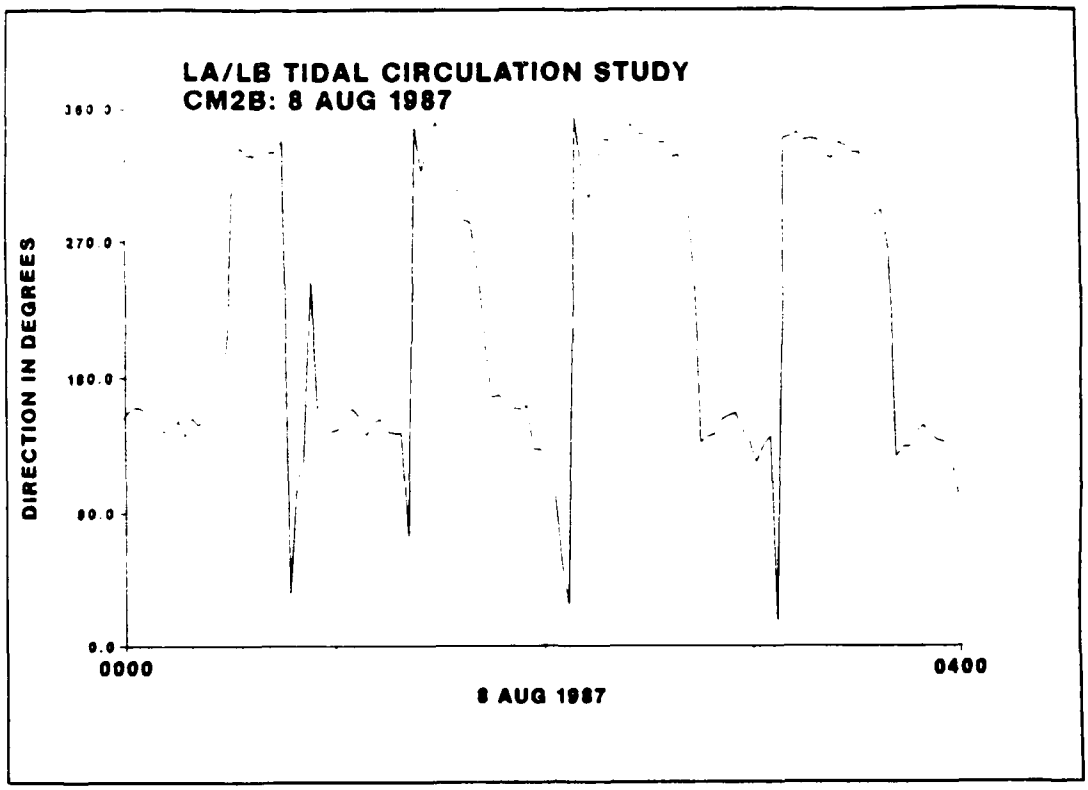
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM2B: 8 AUG 1987
DIRECTION IN DEGREES
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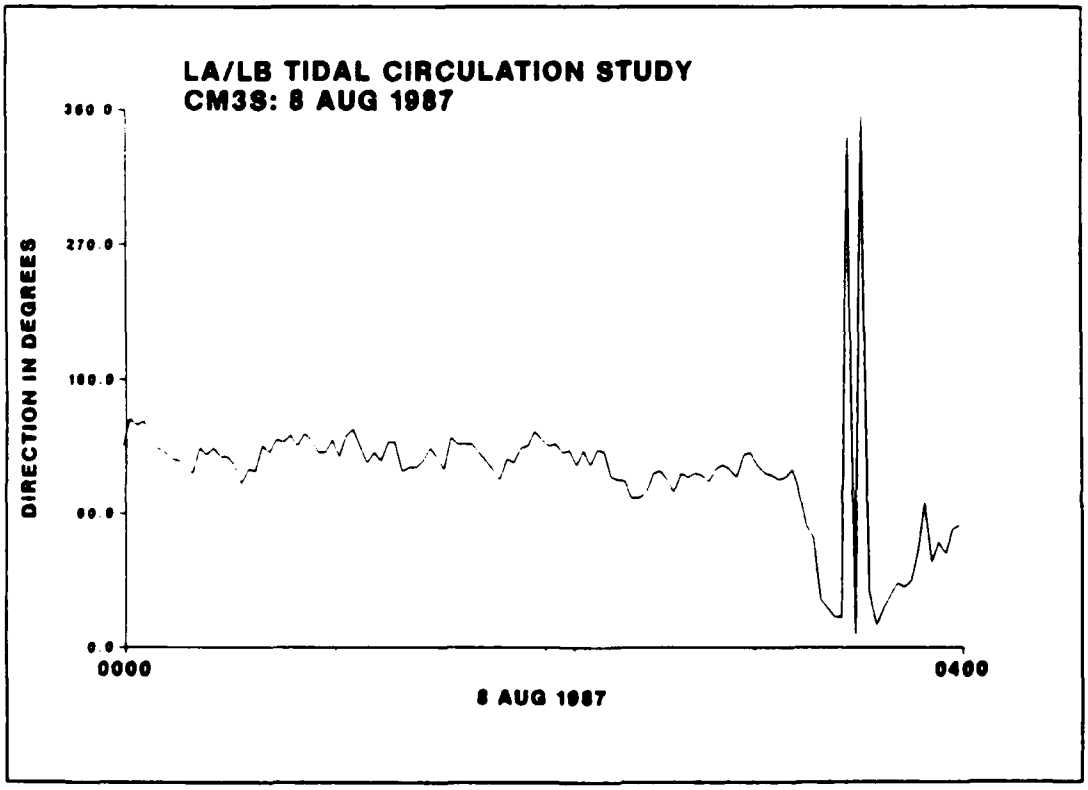
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
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DIRECTION IN DEGREES
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180.0
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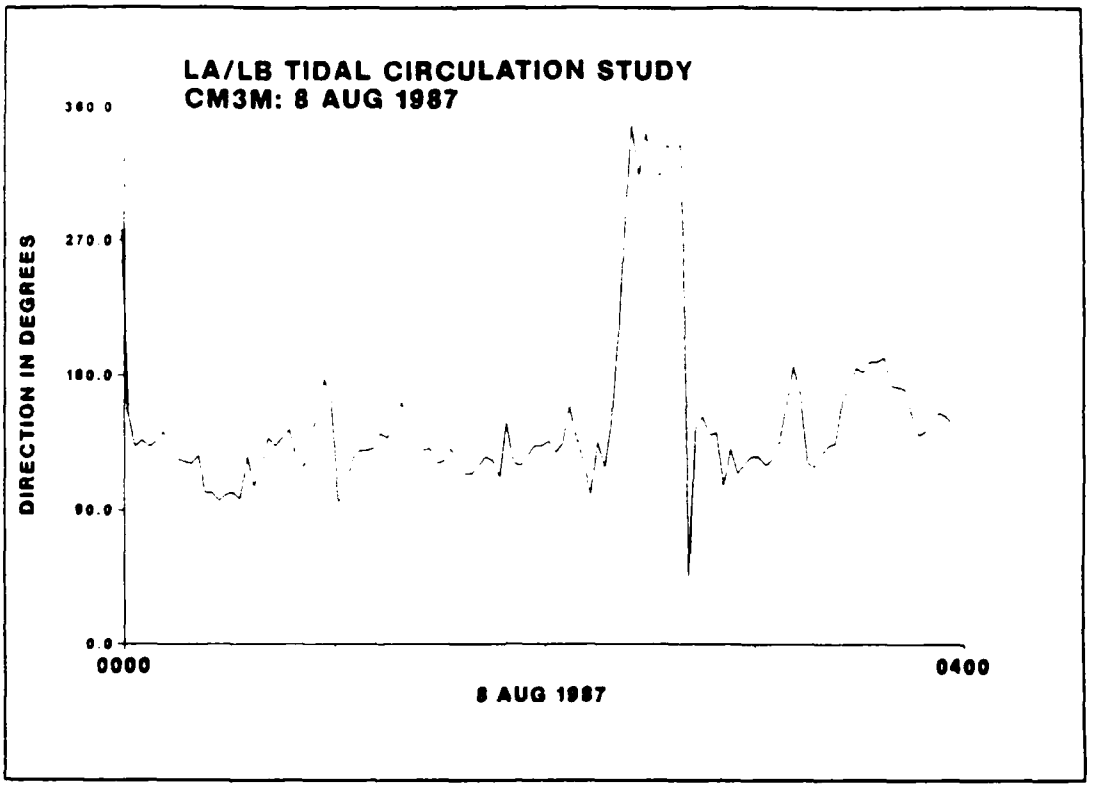
0400
8 AUG 1987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90.0
0.0
DIRECTION IN DEGREES
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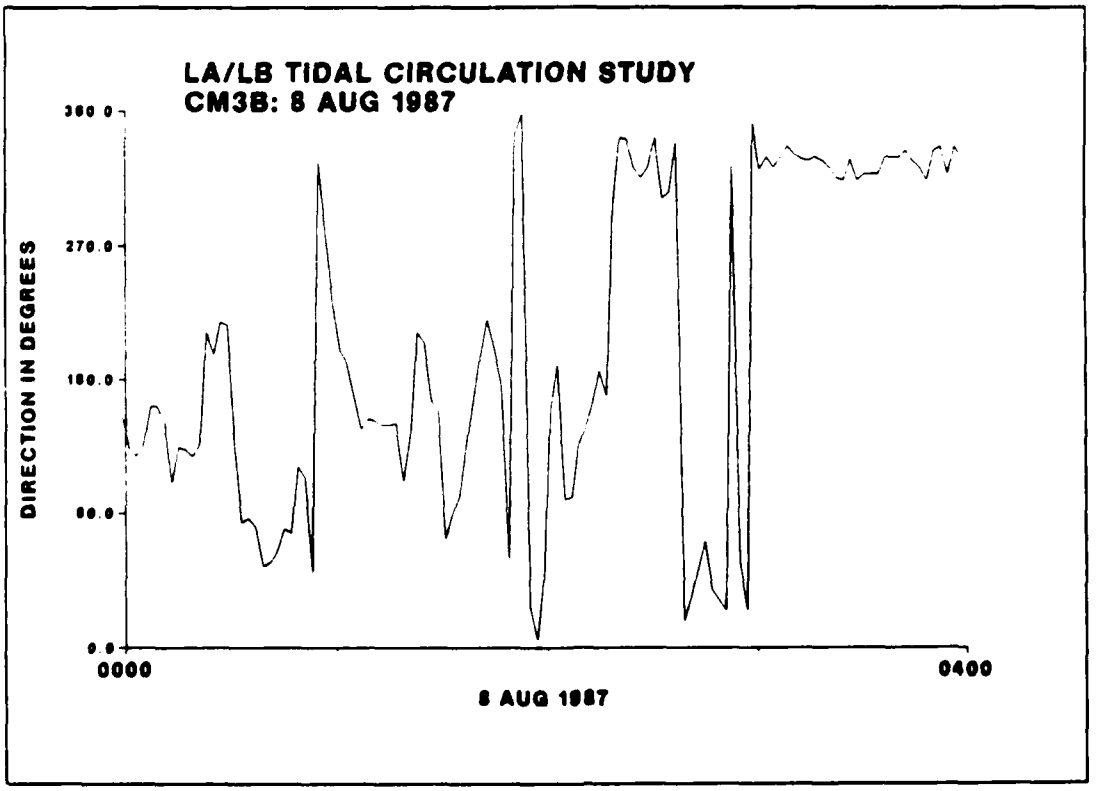
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM3B: 8 AUG 1987
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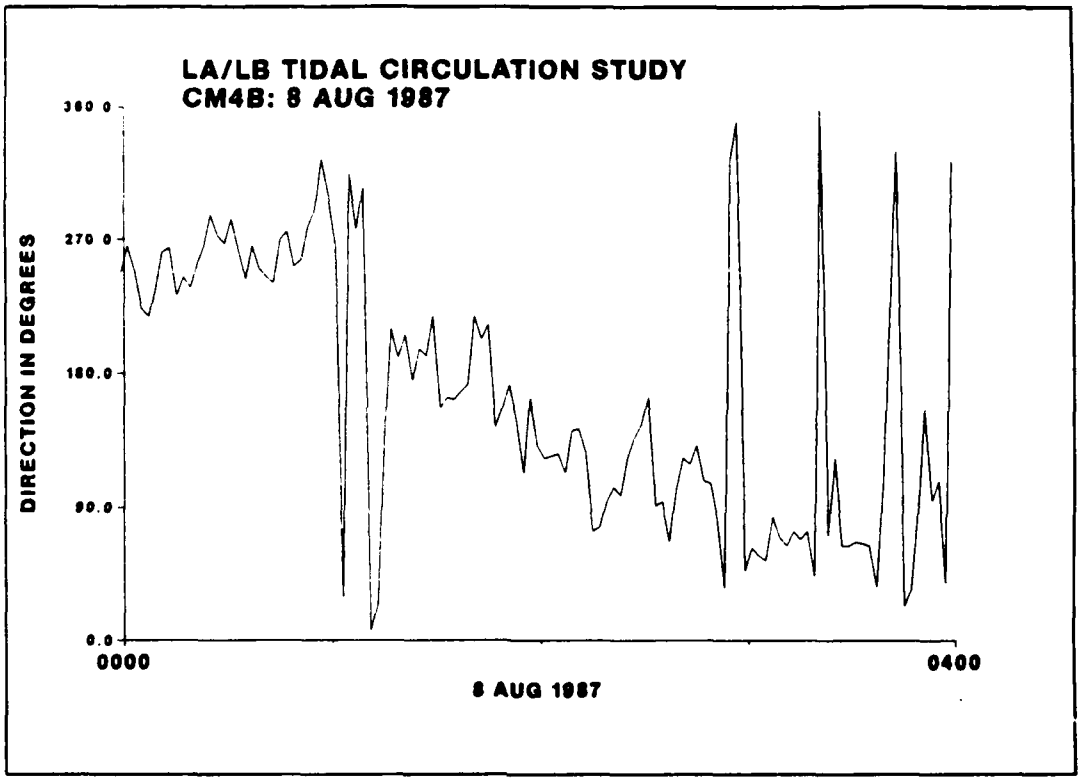
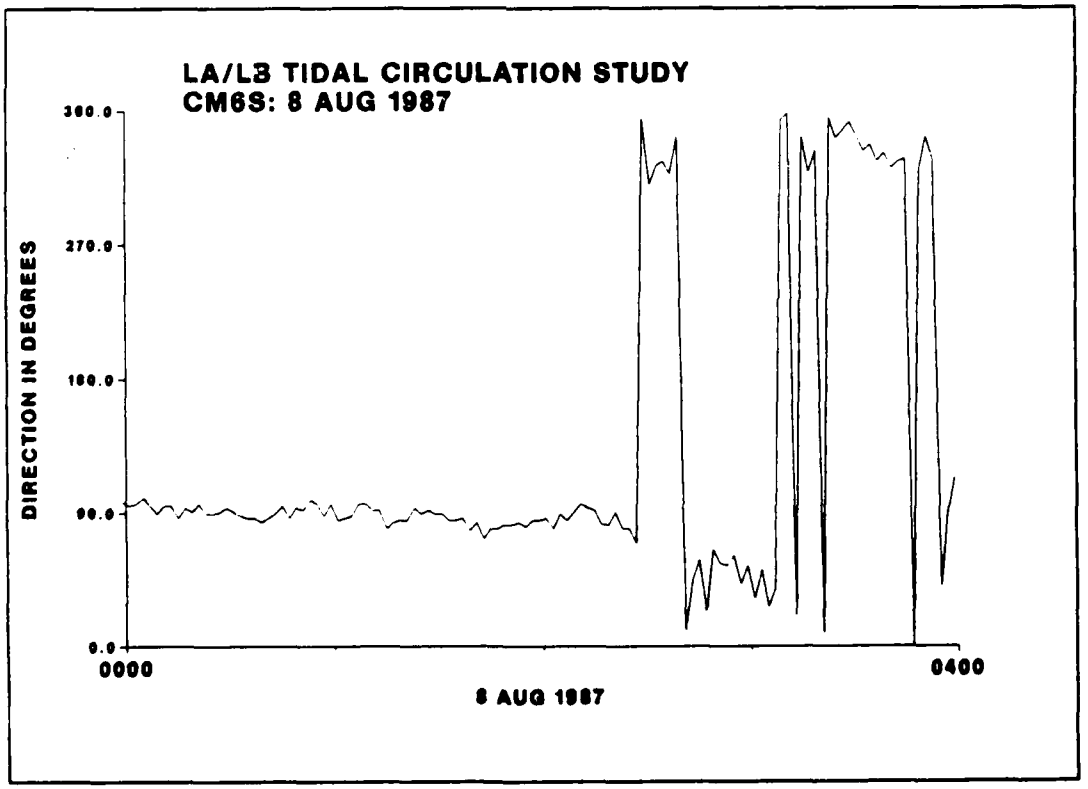
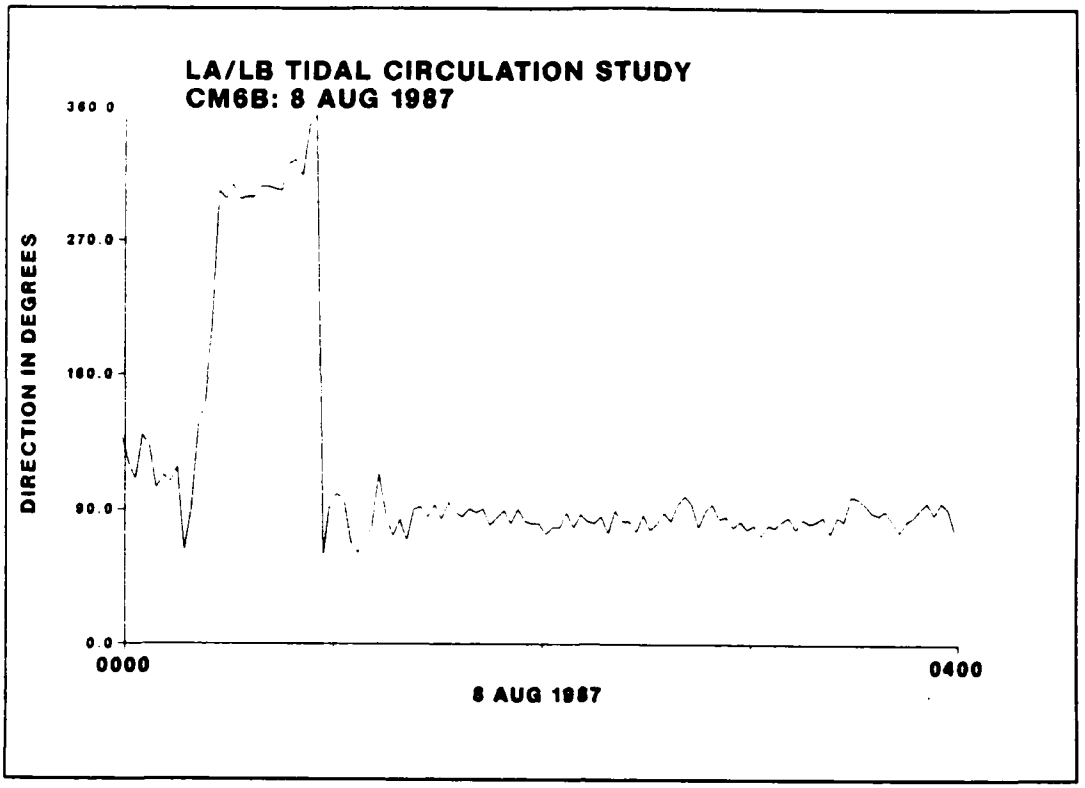
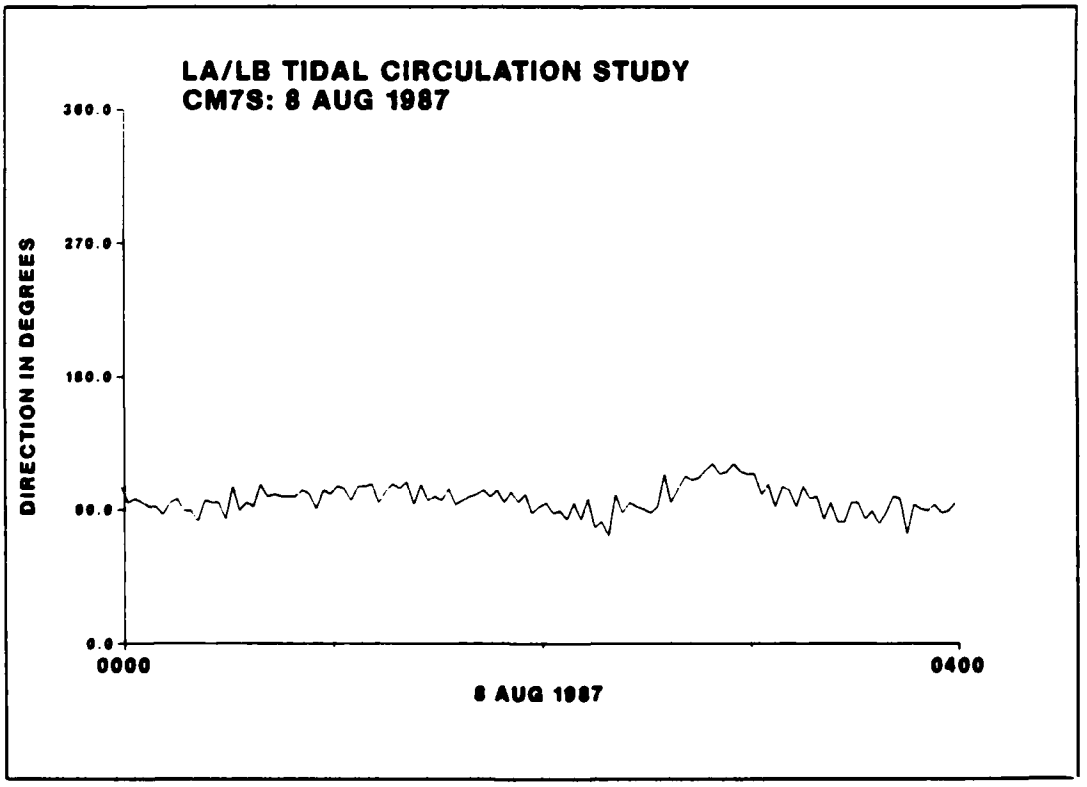
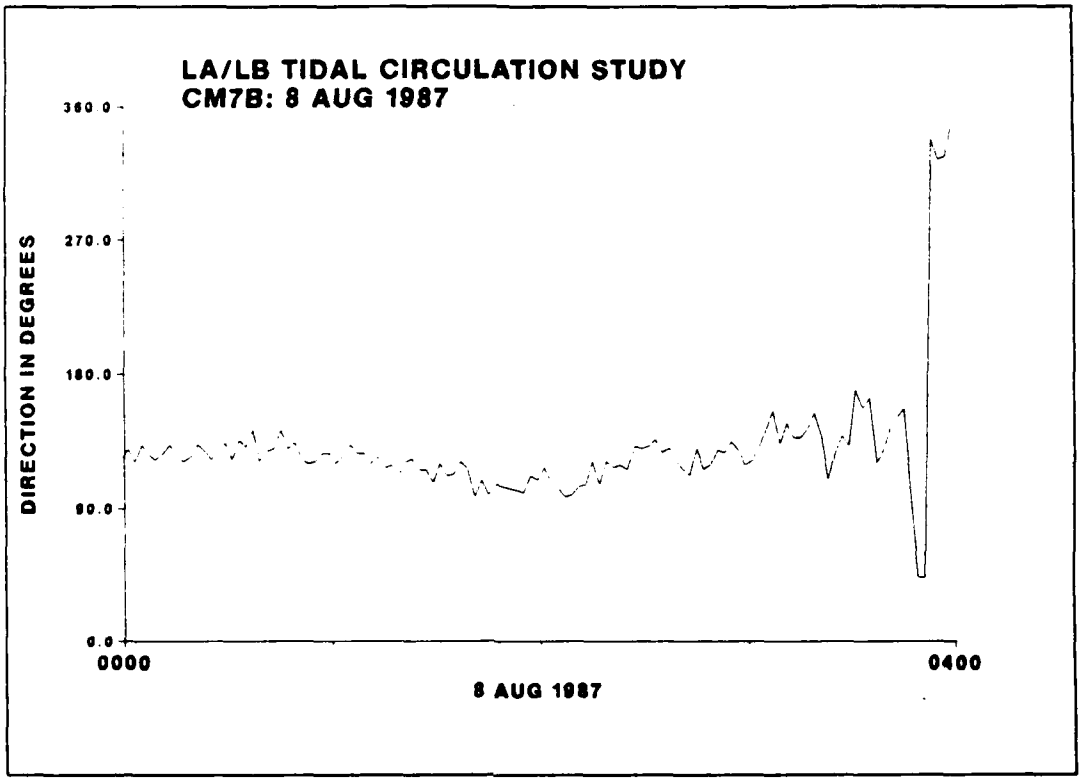
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987

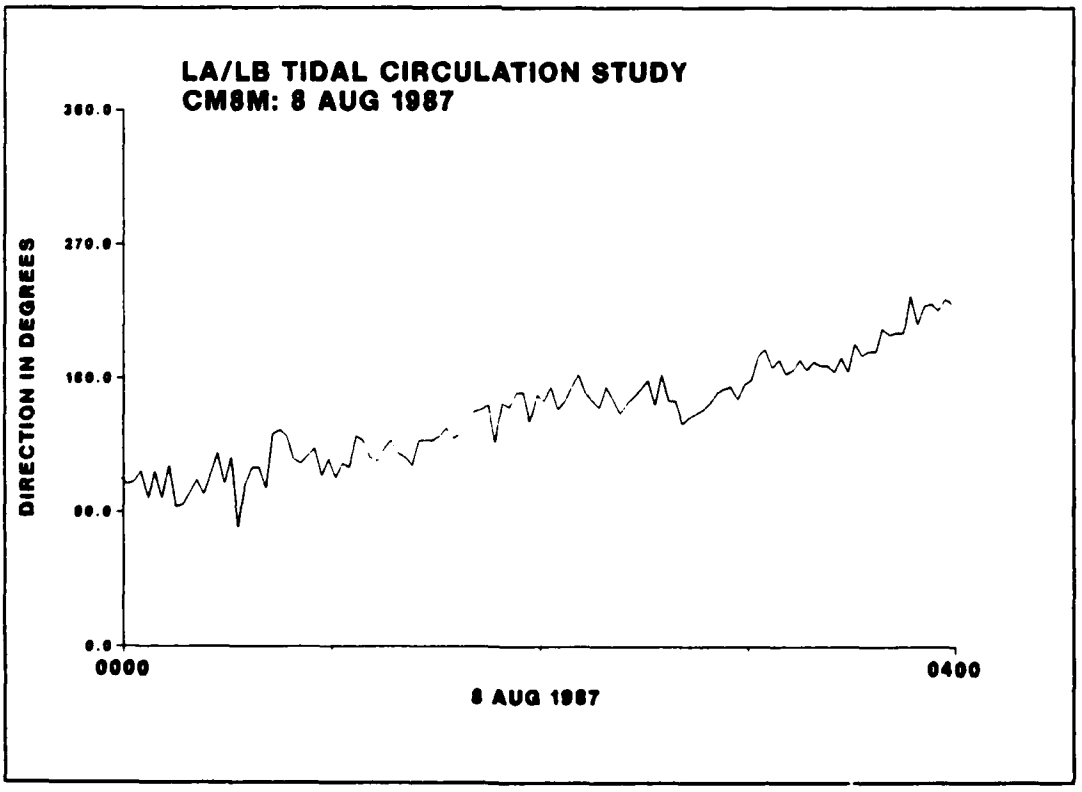

LA/LB TIDAL CIRCULATION STUDY
CM4B: 8 AUG 1987
360.0
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM6S: 8 AUG 1987
360.0
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM6B: 8 AUG 1987
360.0
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987

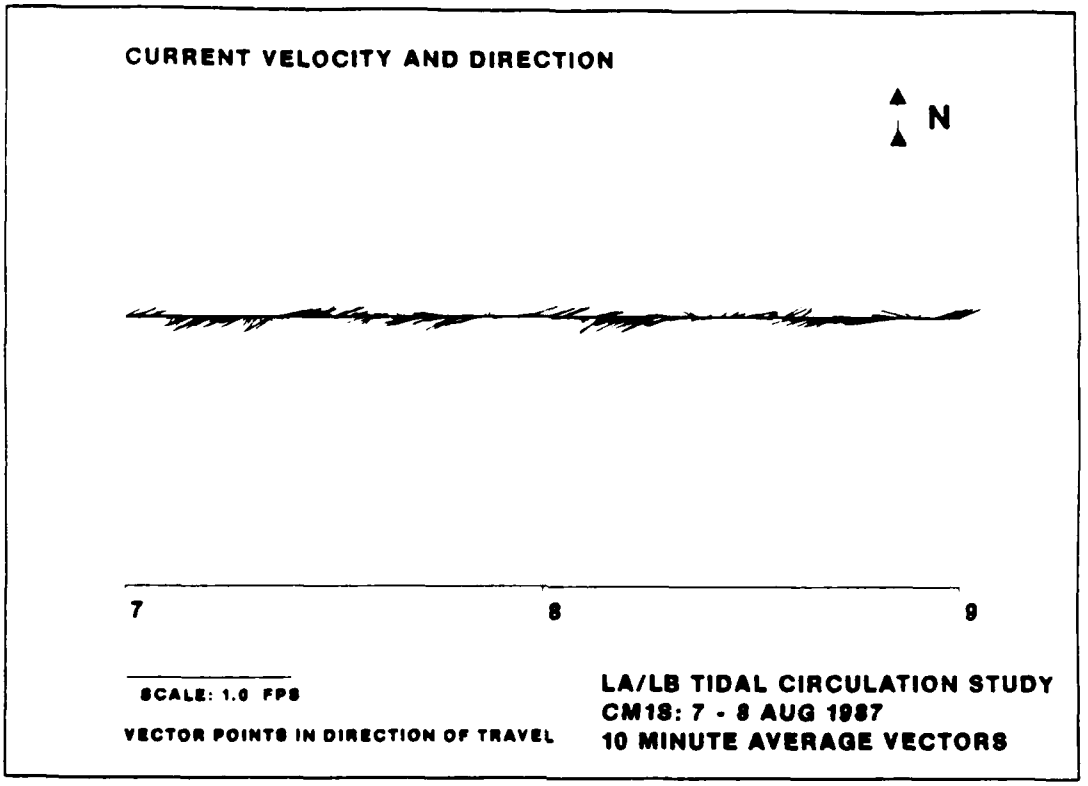

LA/LB TIDAL CIRCULATION STUDY
CM7S: 8 AUG 1987
360.0
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987

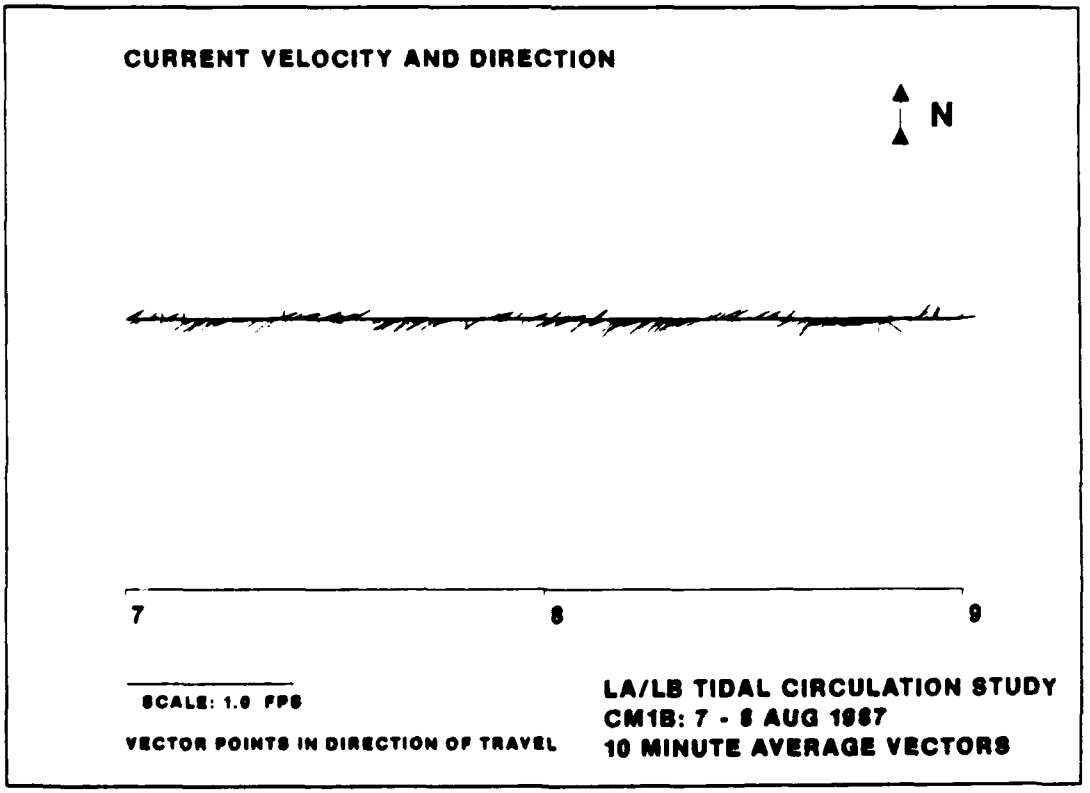

LA/LB TIDAL CIRCULATION STUDY
CM7B: 8 AUG 1987
360.0
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
CM8M: 8 AUG 1987
360.0
270.0
180.0
90.0
0.0
DIRECTION IN DEGREES
0000
0400
8 AUG 1987

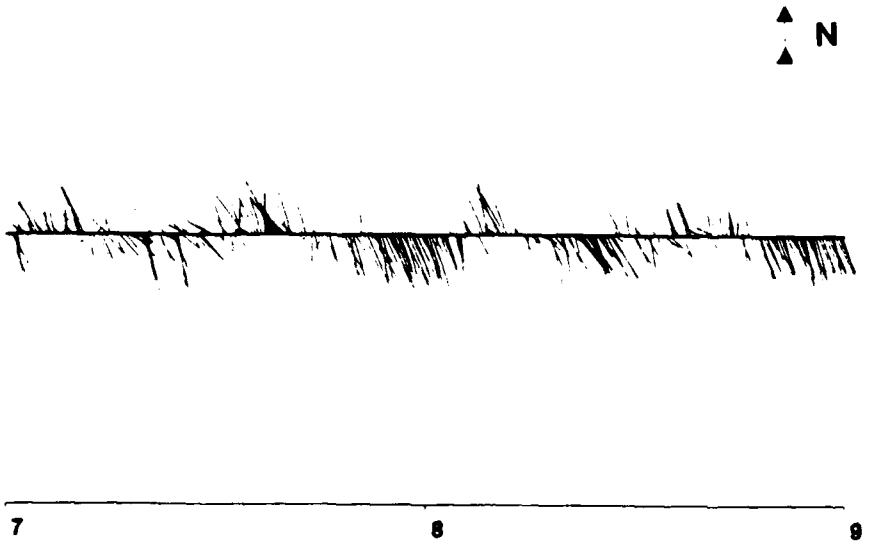
APPENDIX H: CURRENT VECTOR TIME SERIES PLOTS

This appendix contains plots of current vector time series. Time series are suffixed with S, M, and B, which stand for surface, middepth, and bottom, respectively.


CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM1S: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS


CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM1B: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

CURRENT VELOCITY AND DIRECTION

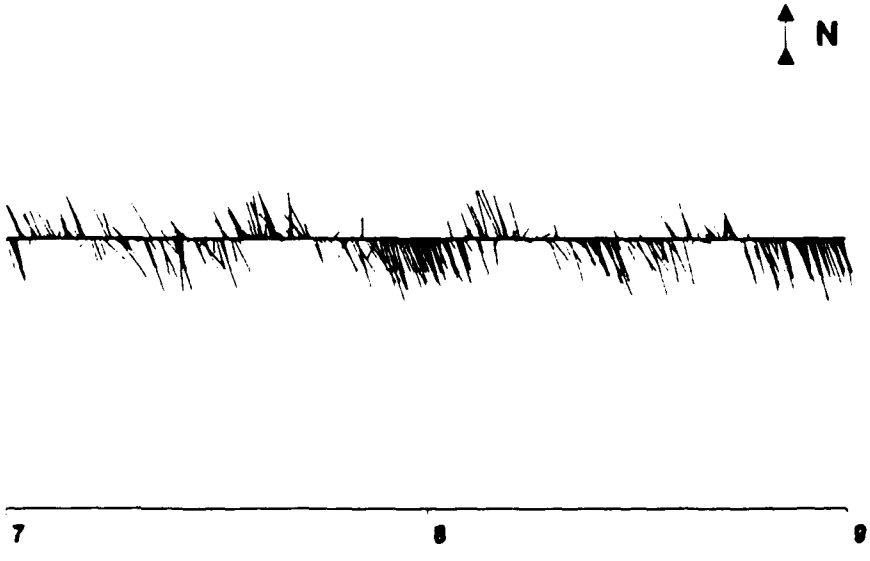


SCALE: 1.0 FPS

VECTOR POINTS IN DIRECTION OF TRAVEL

LA/LB TIDAL CIRCULATION STUDY
CM2S: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

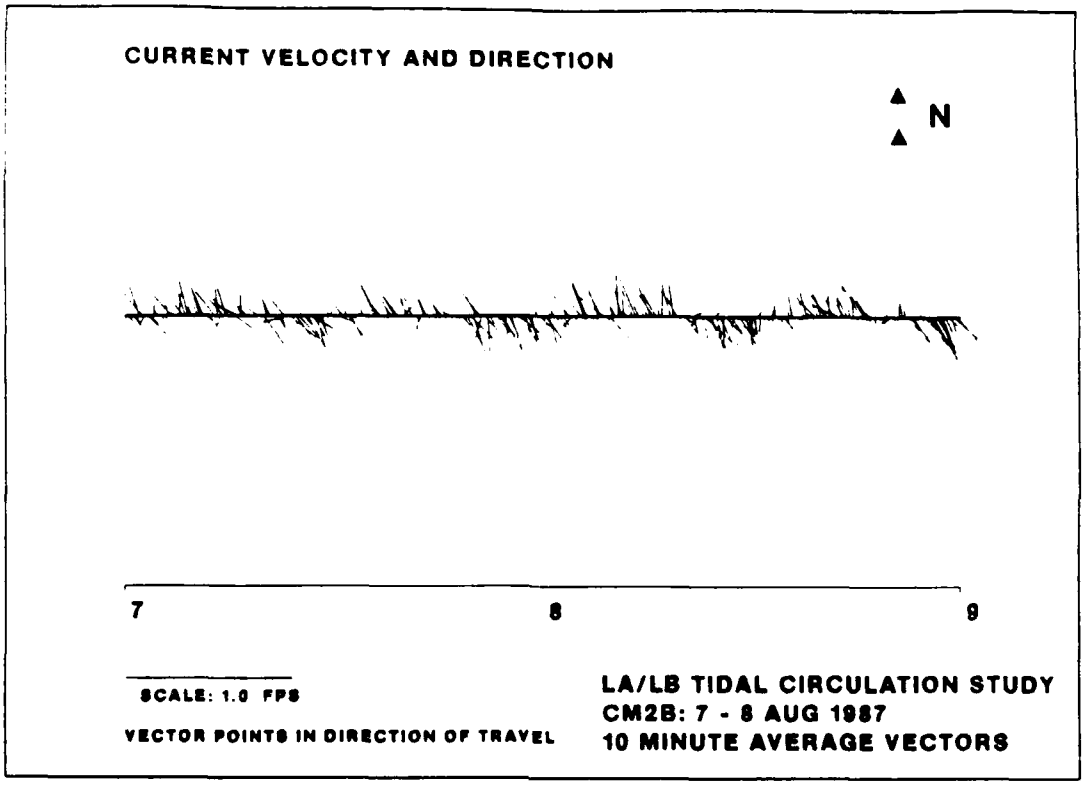
CURRENT VELOCITY AND DIRECTION

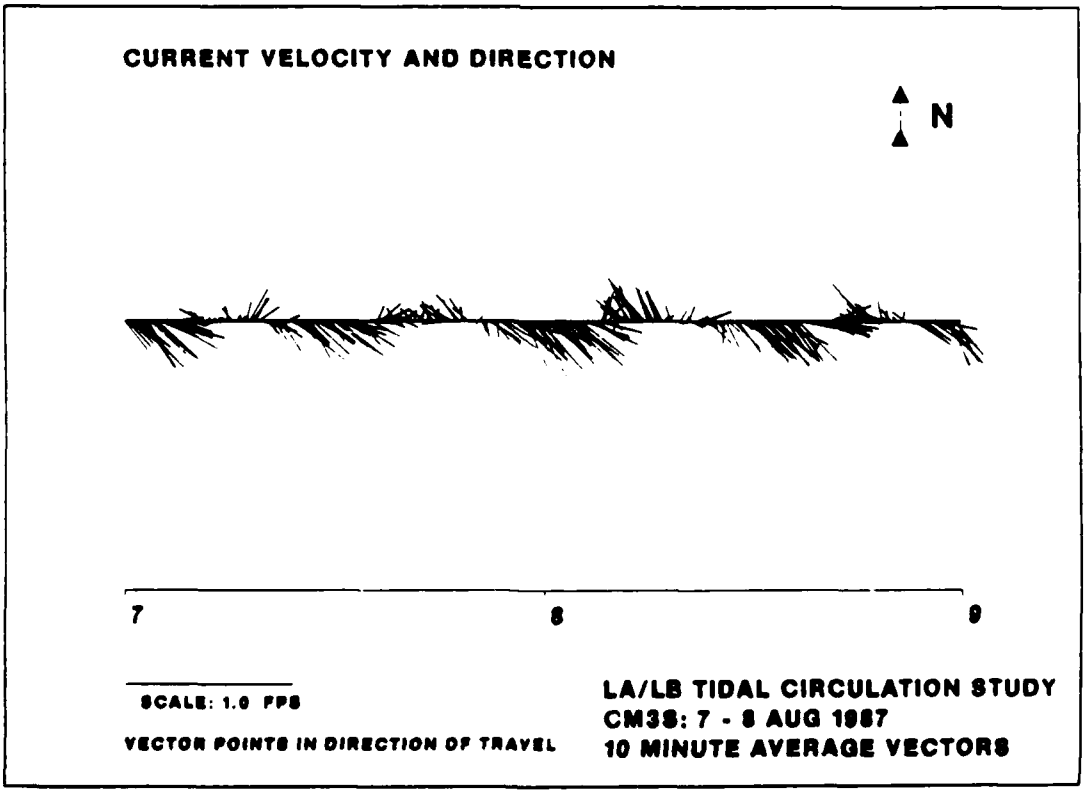


SCALE: 1.0 FPS

VECTOR POINTS IN DIRECTION OF TRAVEL

LA/LB TIDAL CIRCULATION STUDY
CM2M: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS


CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2B: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS


CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3S: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

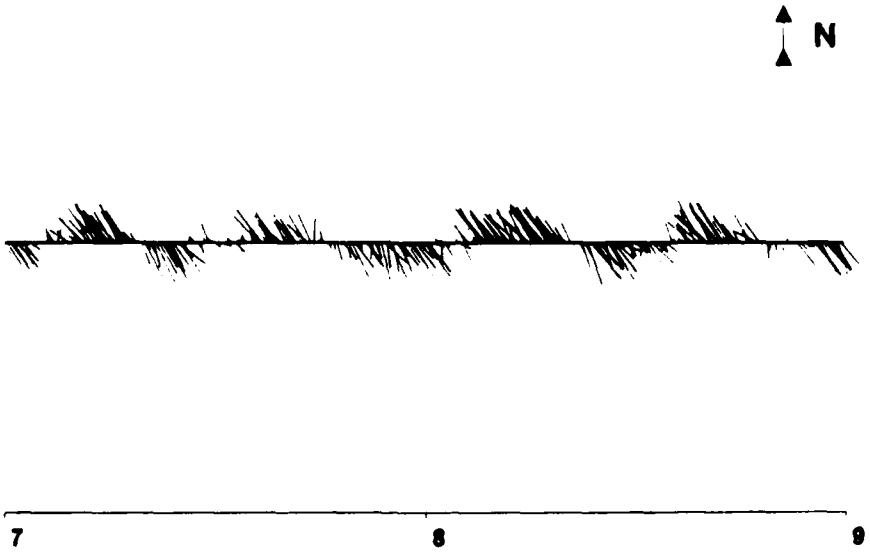
CURRENT VELOCITY AND DIRECTION

SCALE: 1.0 FPS

VECTOR POINTS IN DIRECTION OF TRAVEL

LA/LB TIDAL CIRCULATION STUDY
CM3M: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

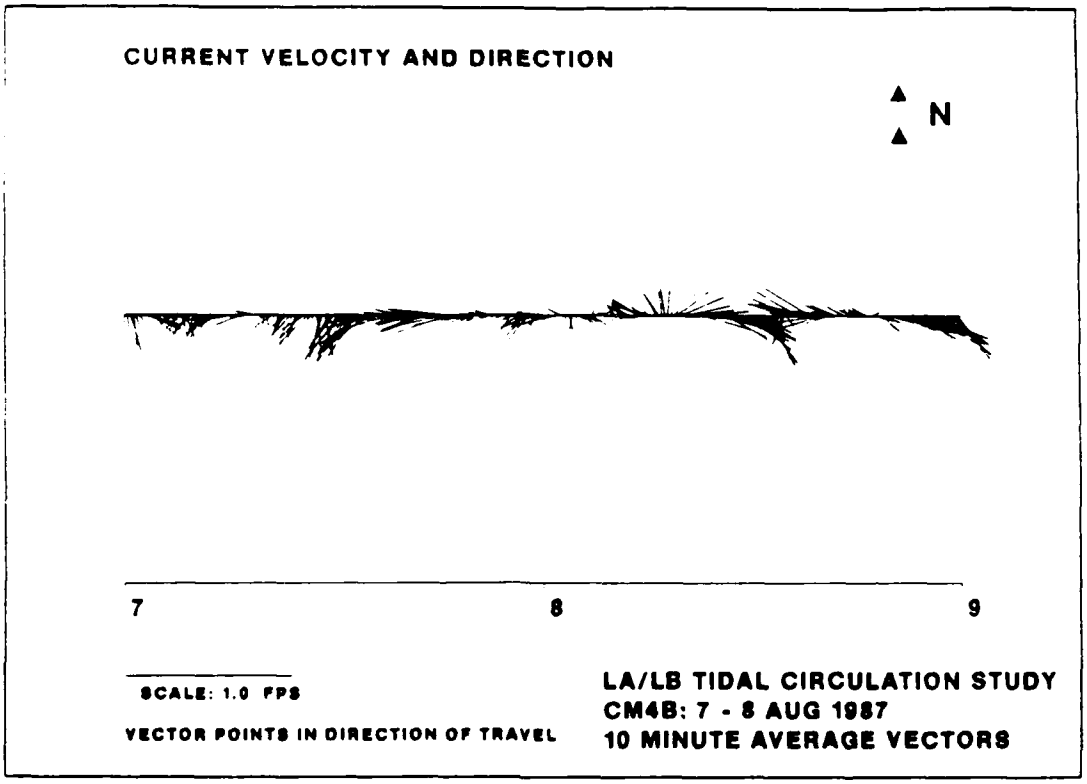
CURRENT VELOCITY AND DIRECTION

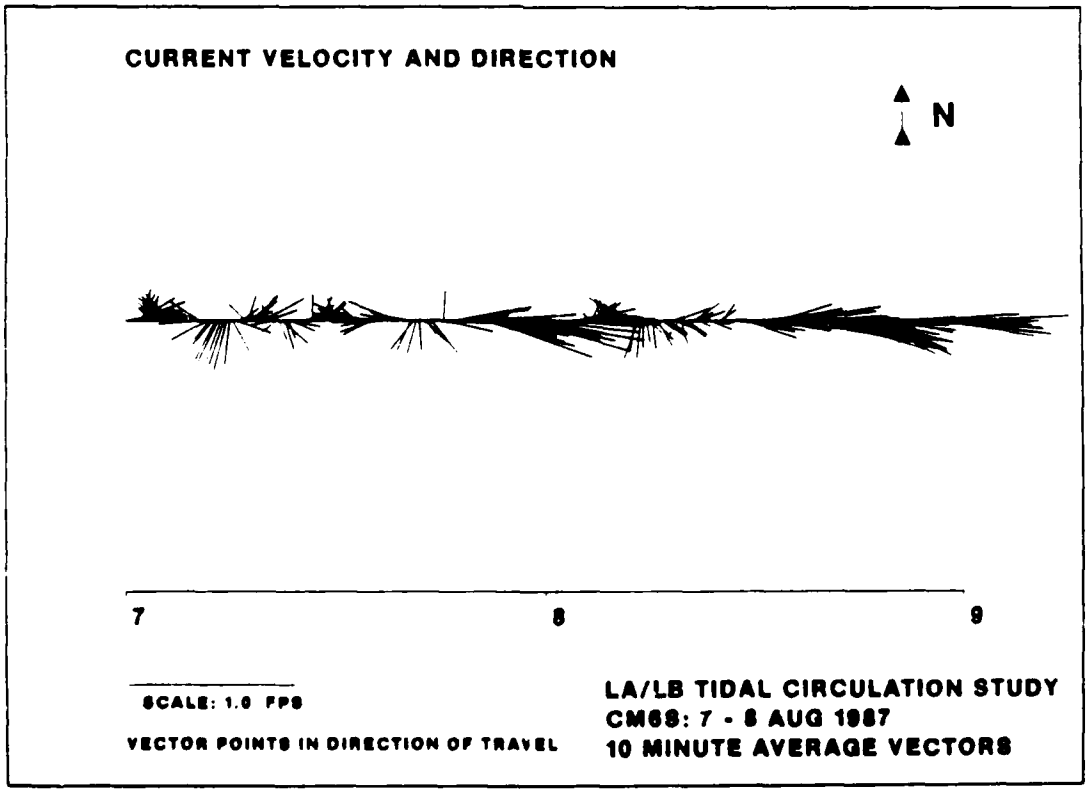


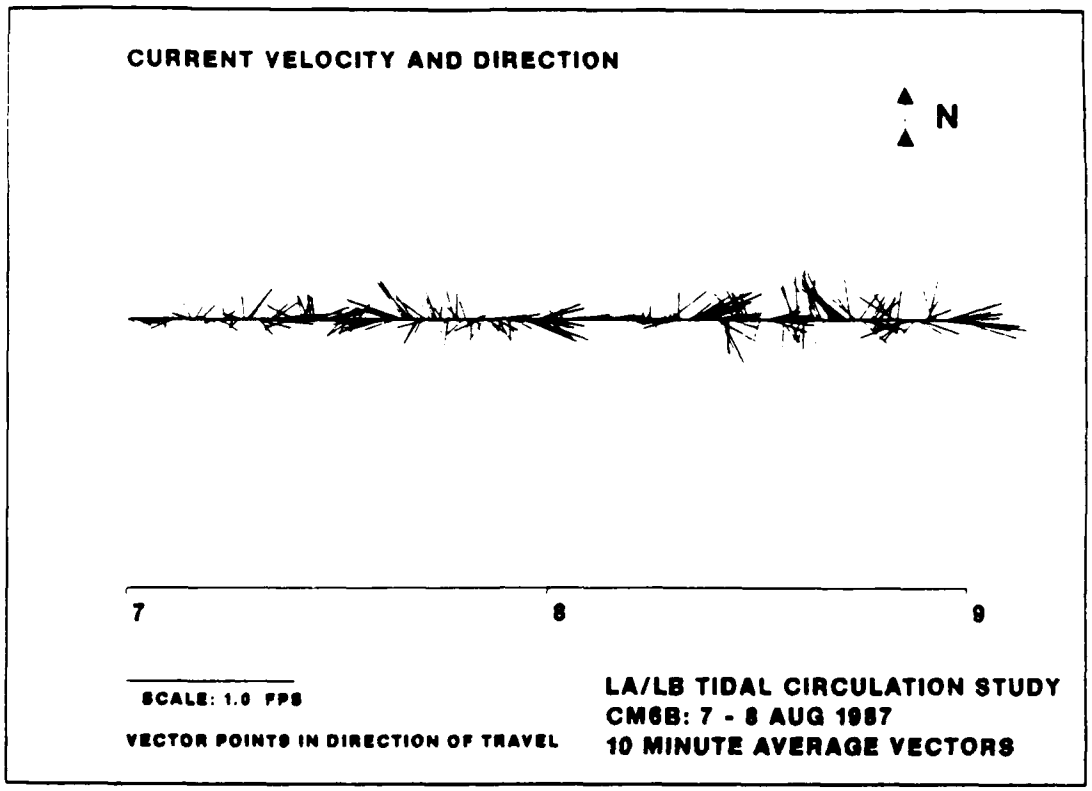
SCALE: 1.0 FPS

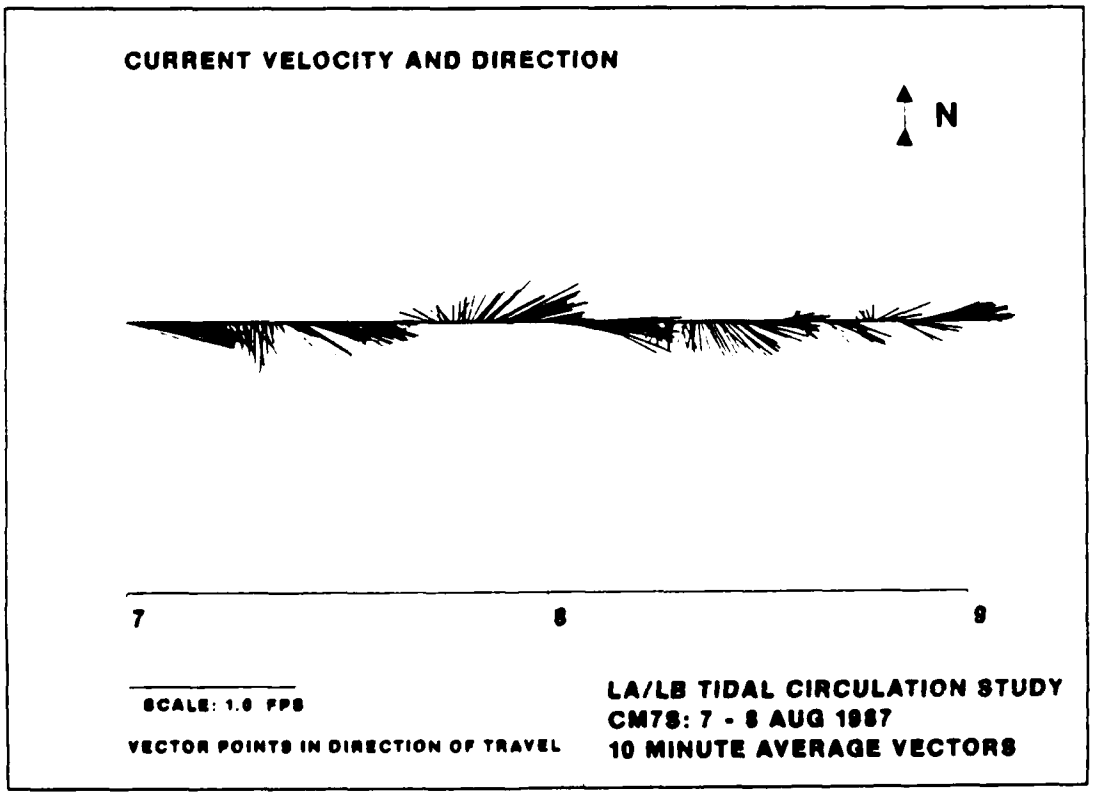
VECTOR POINTS IN DIRECTION OF TRAVEL

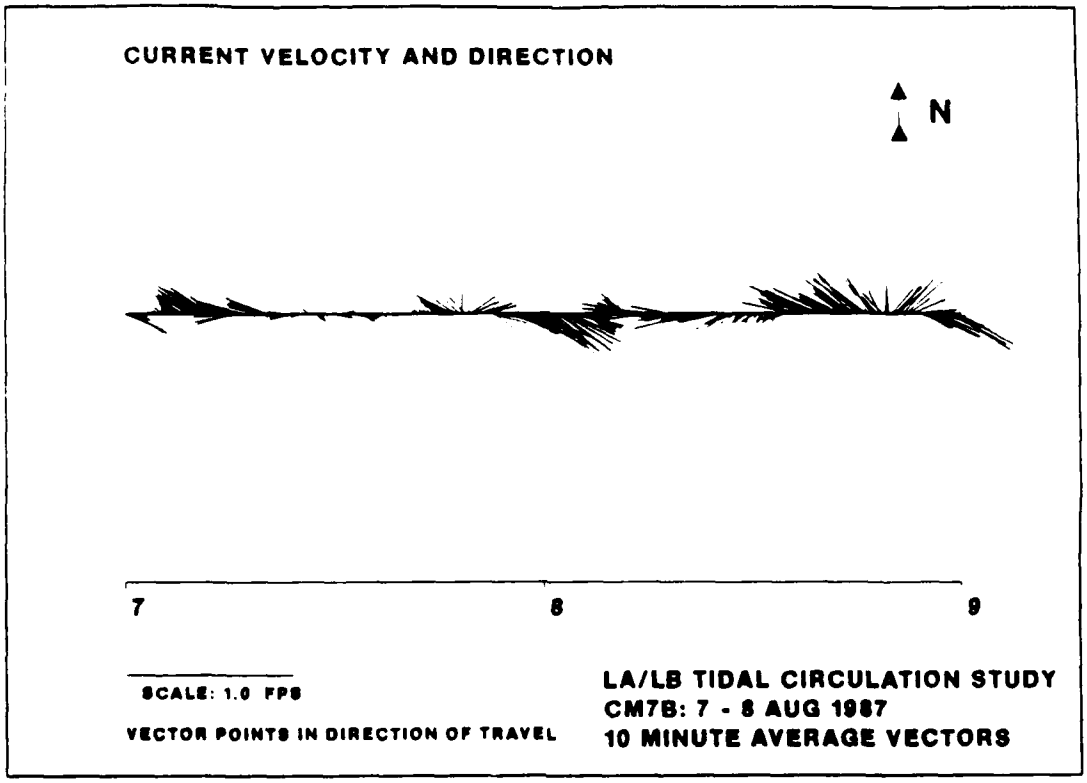
LA/LB TIDAL CIRCULATION STUDY
CM3B: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

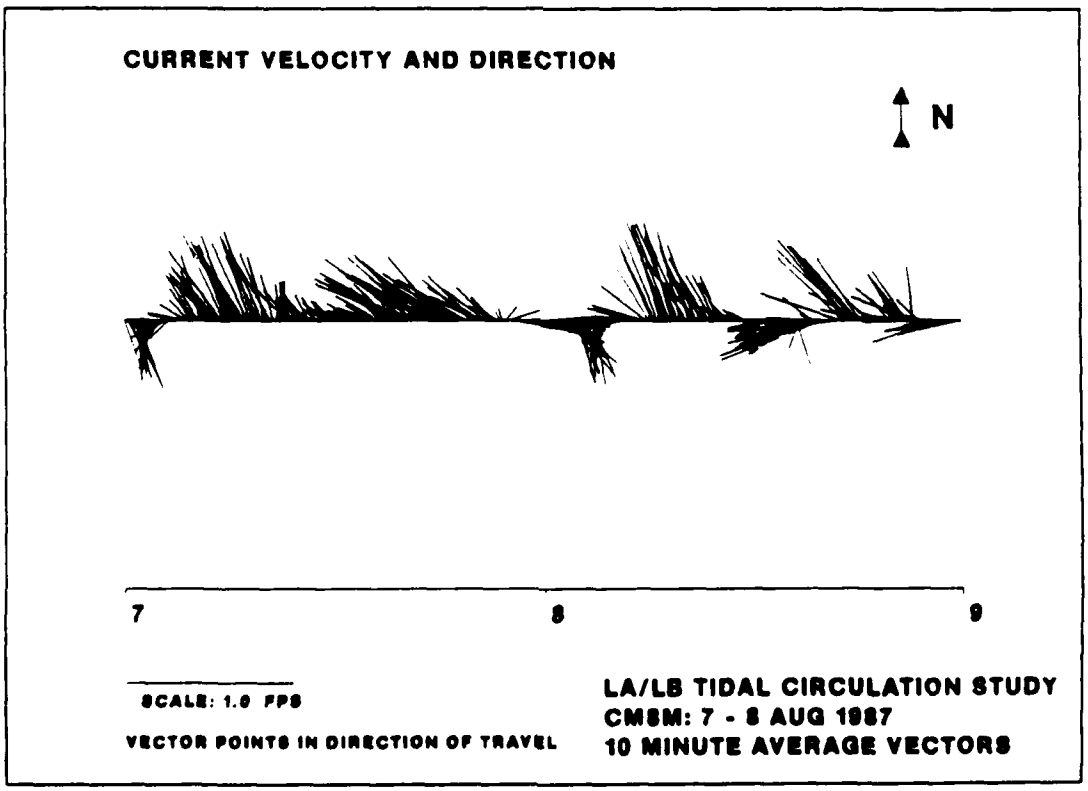

CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM4B: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

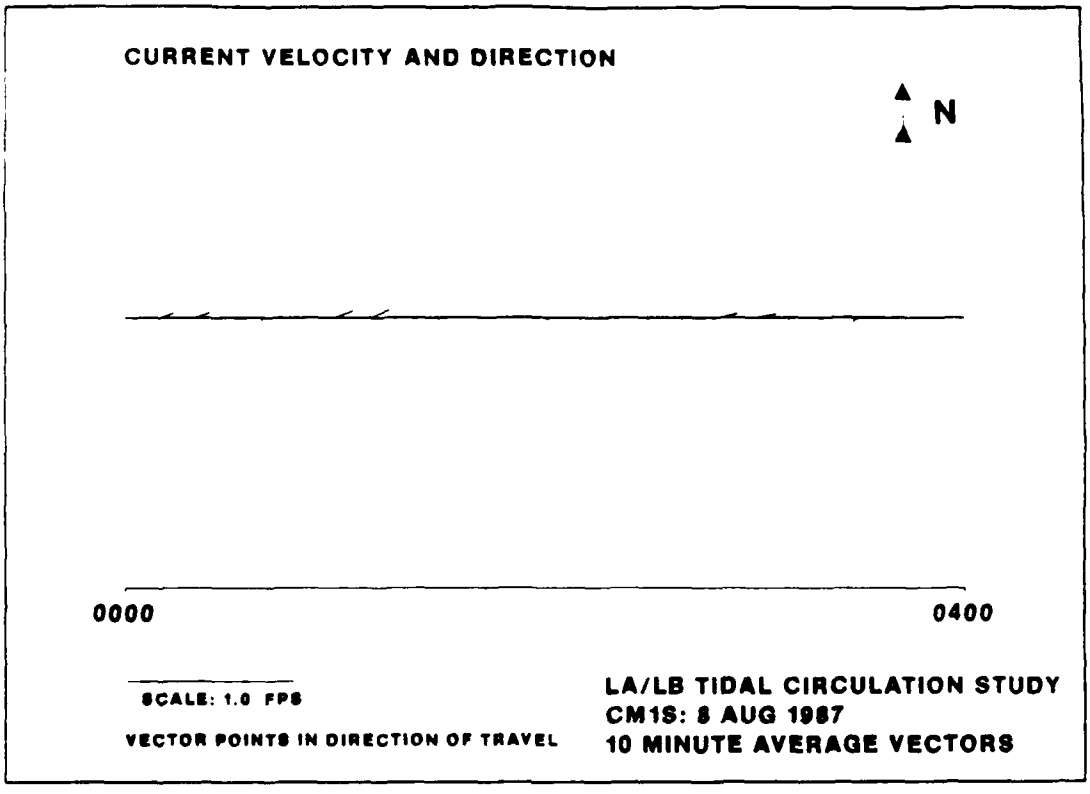

CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM6S: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

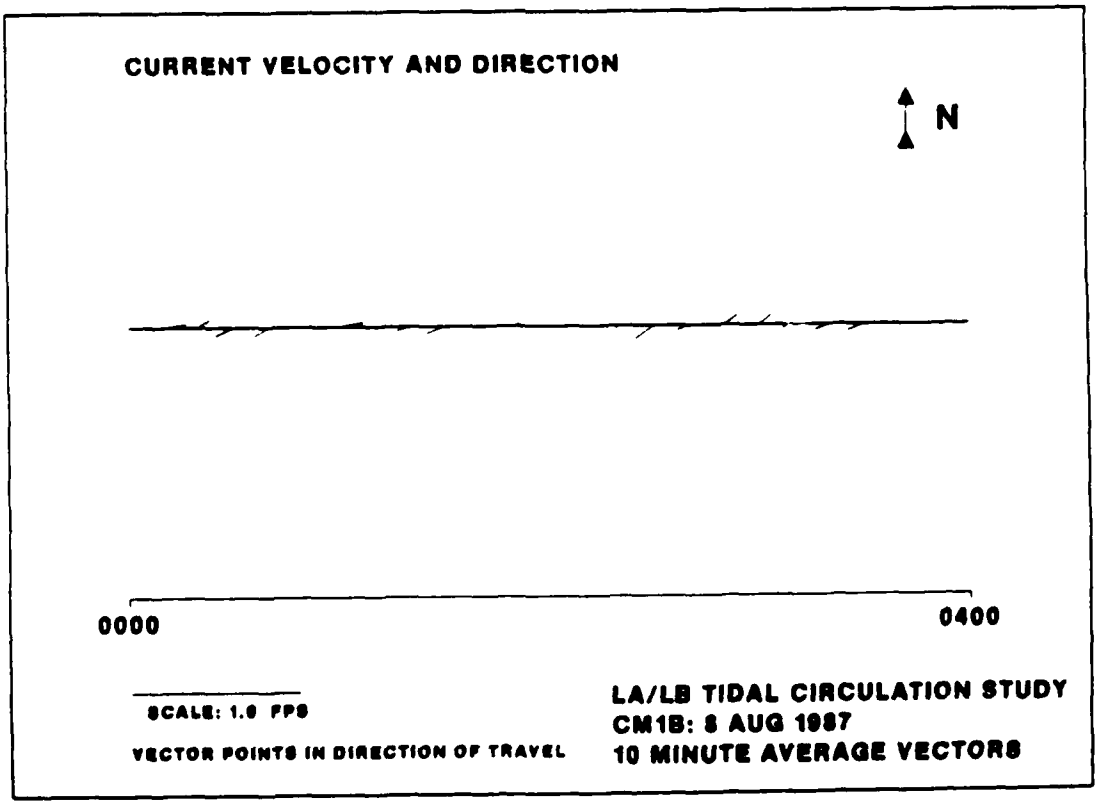

CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM6B: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

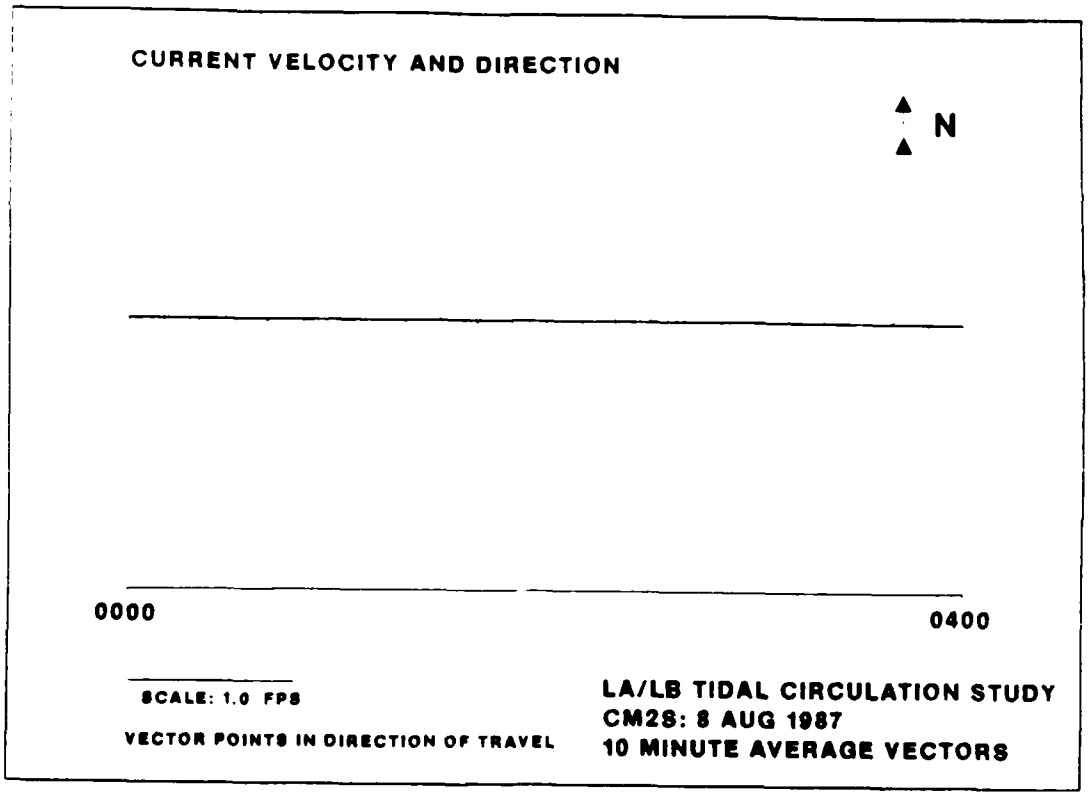

CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM7S: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

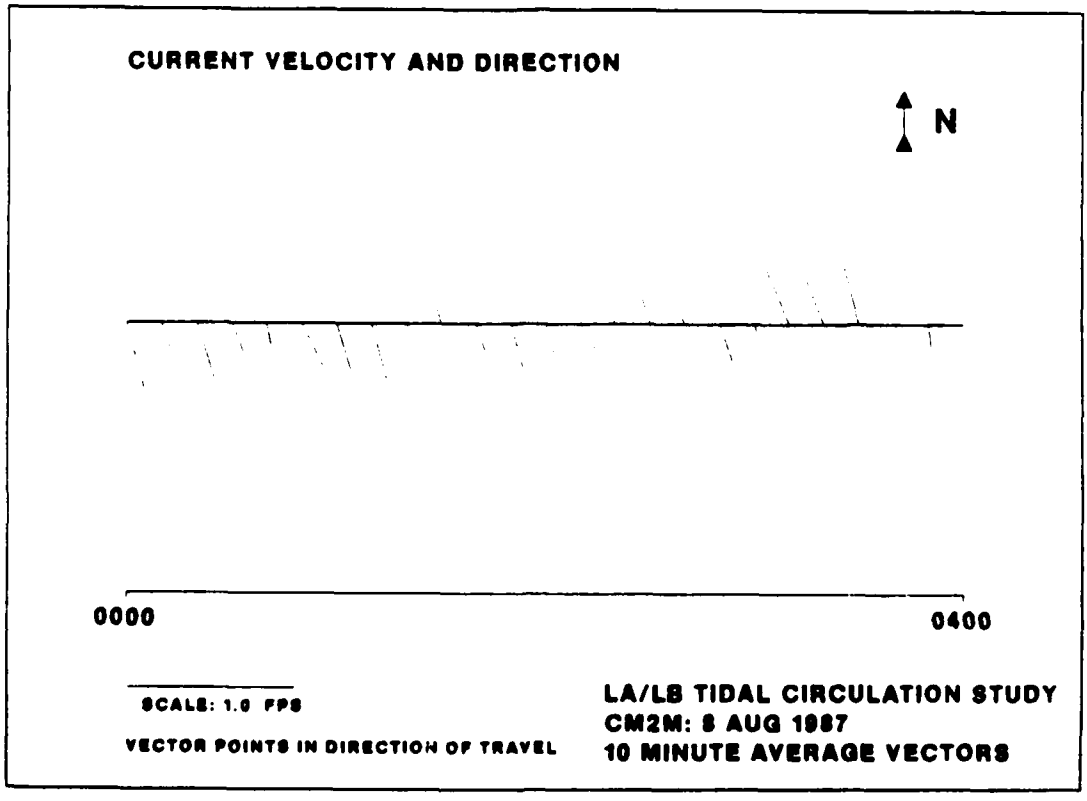

CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM7B: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

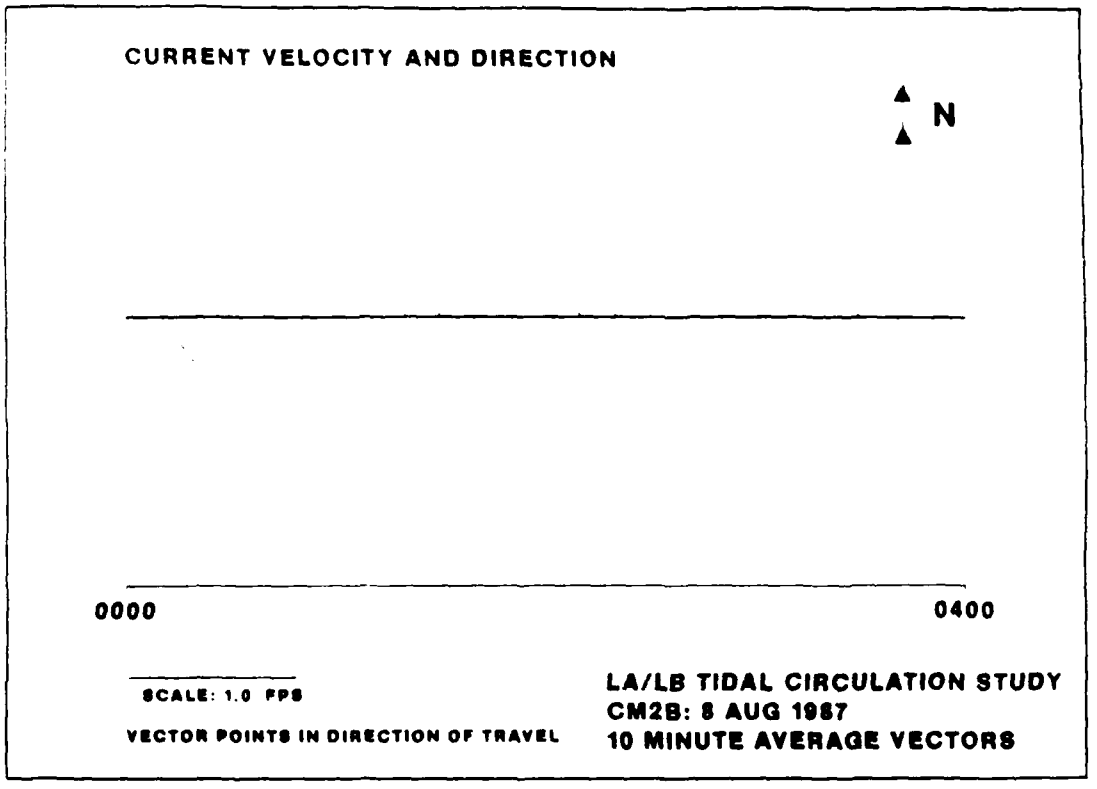

CURRENT VELOCITY AND DIRECTION
N
7
8
9
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM8M: 7 - 8 AUG 1987
10 MINUTE AVERAGE VECTORS

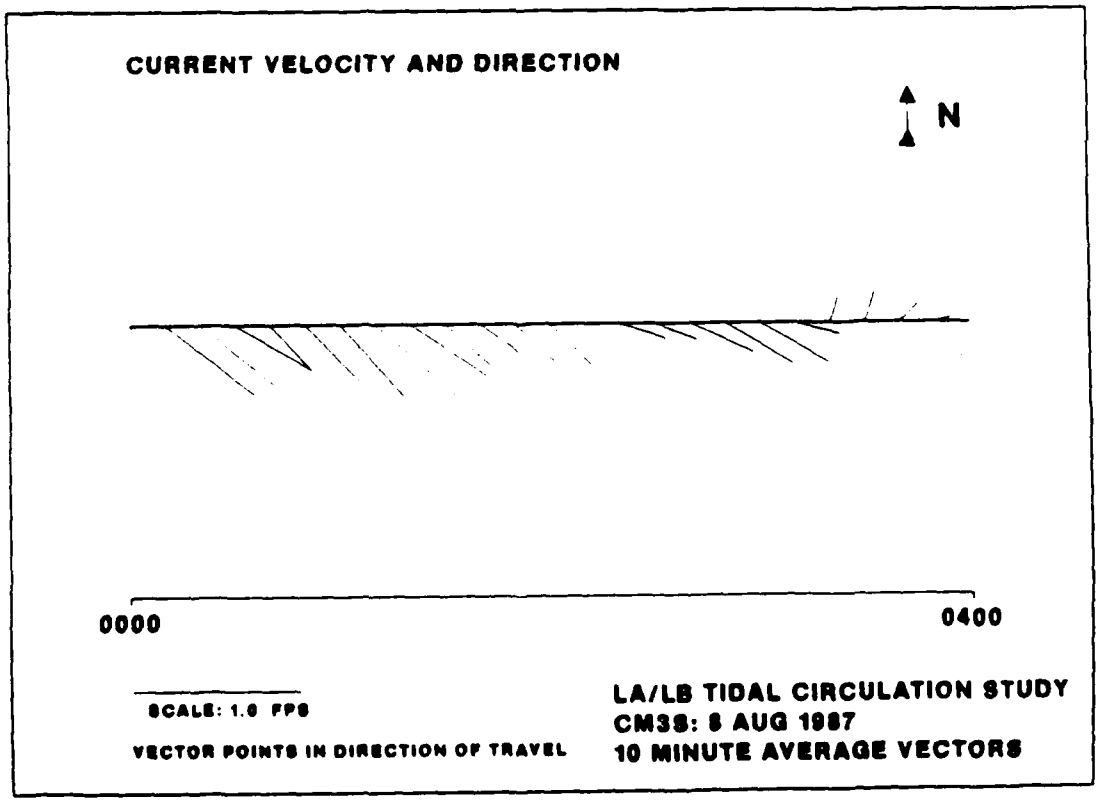

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM1S: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

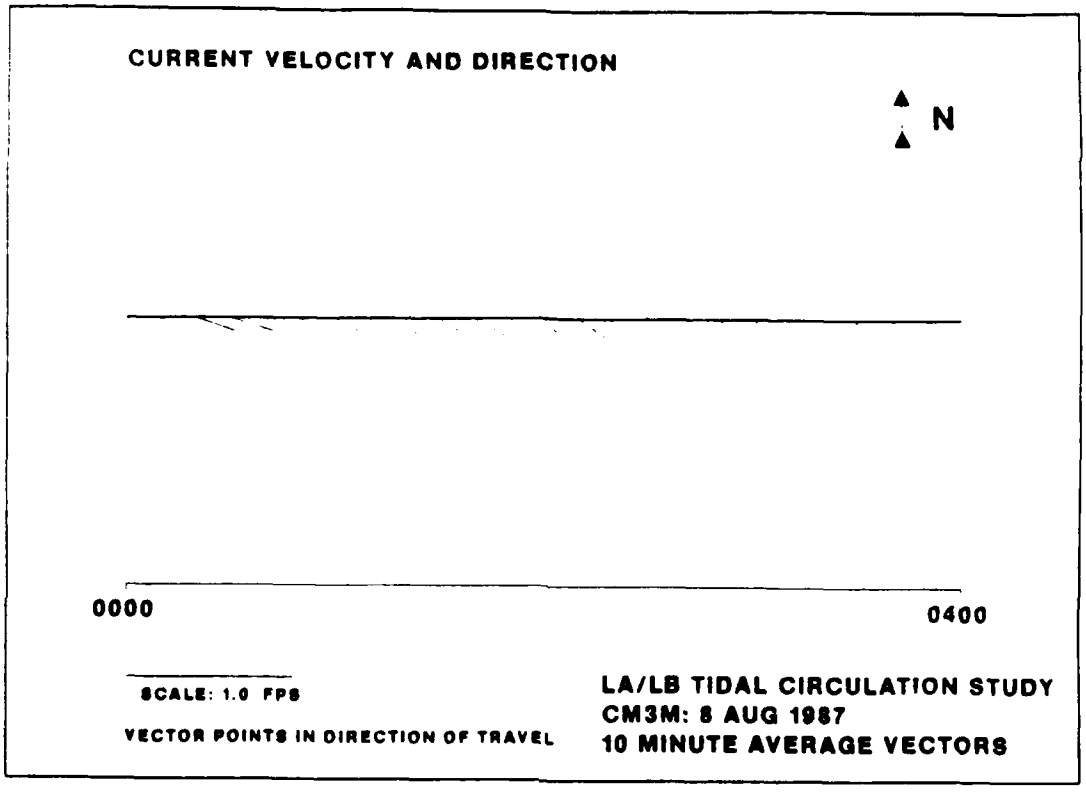

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM1B: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

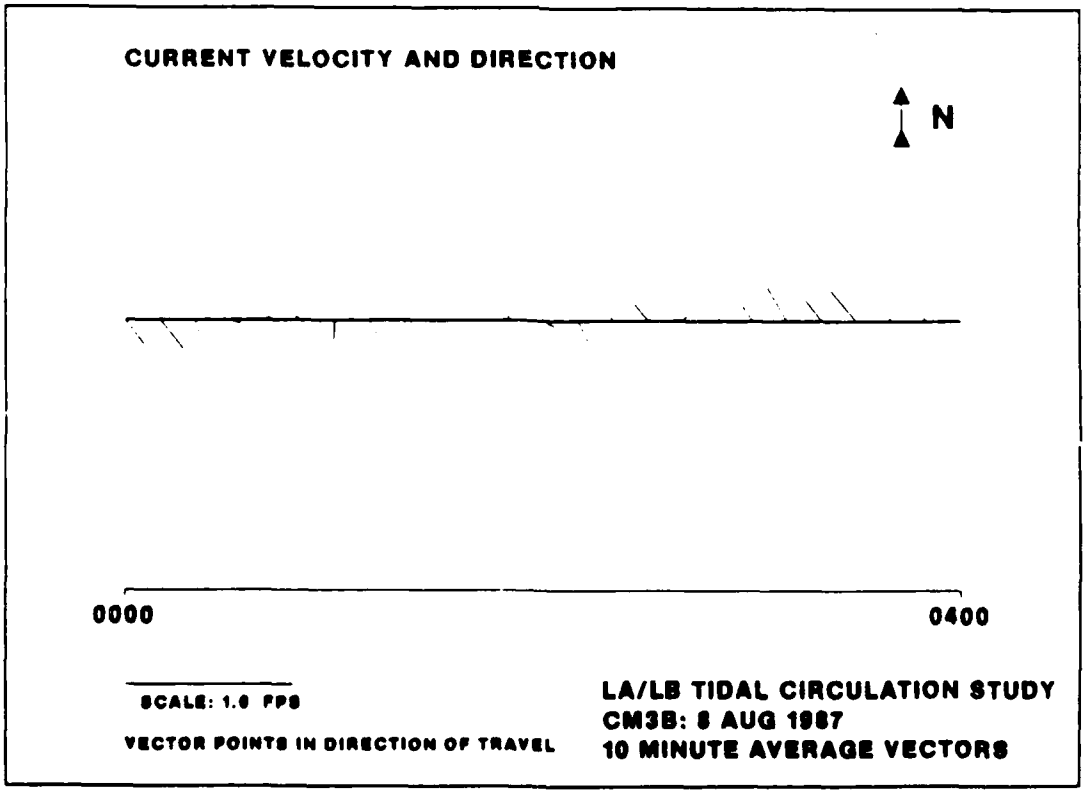

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2S: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

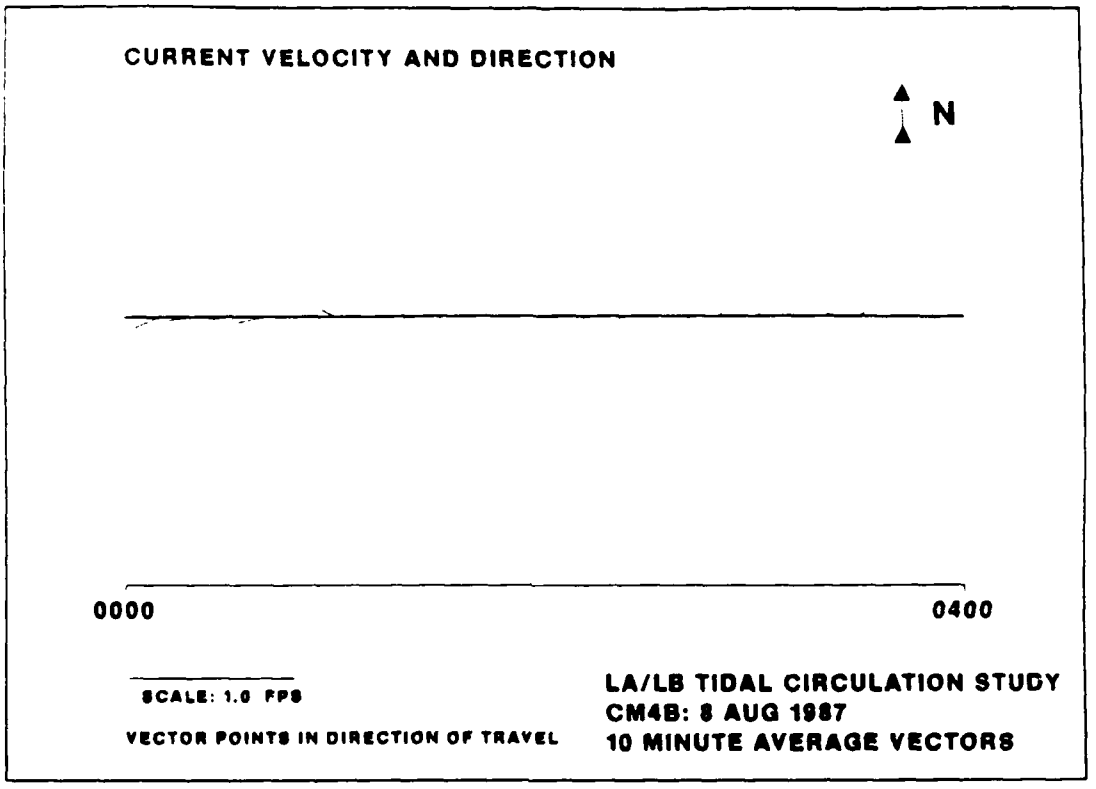

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2M: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

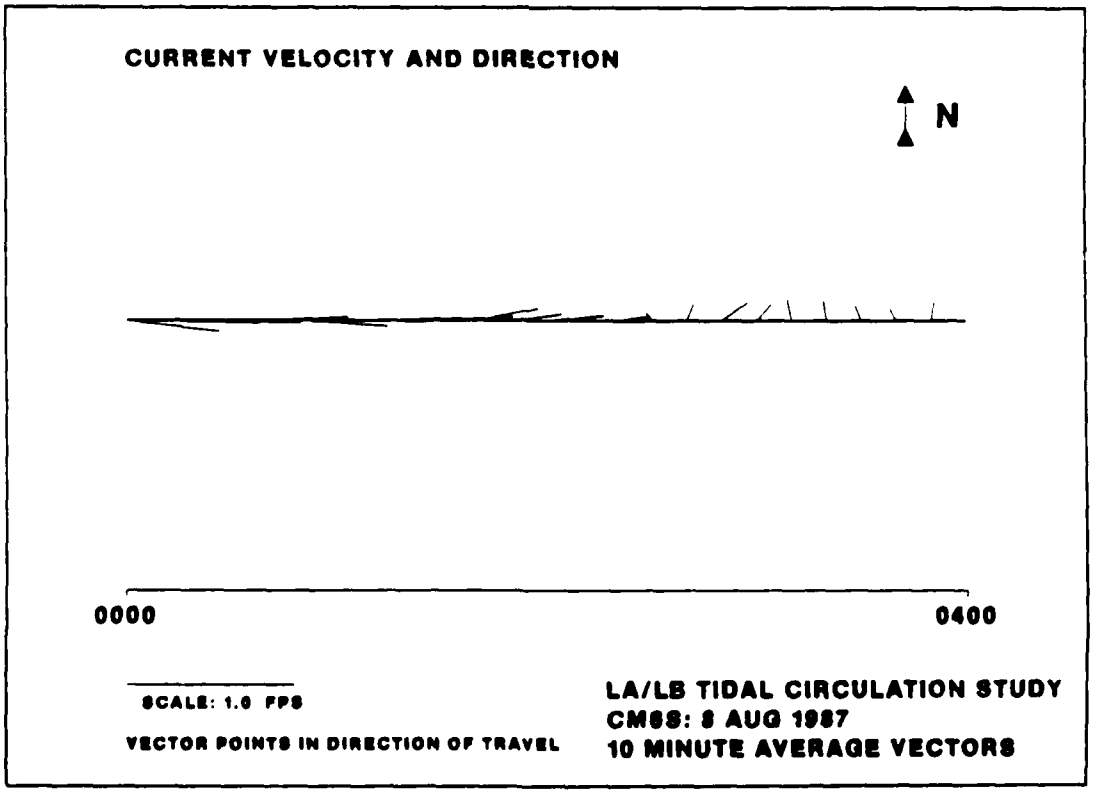

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM2B: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

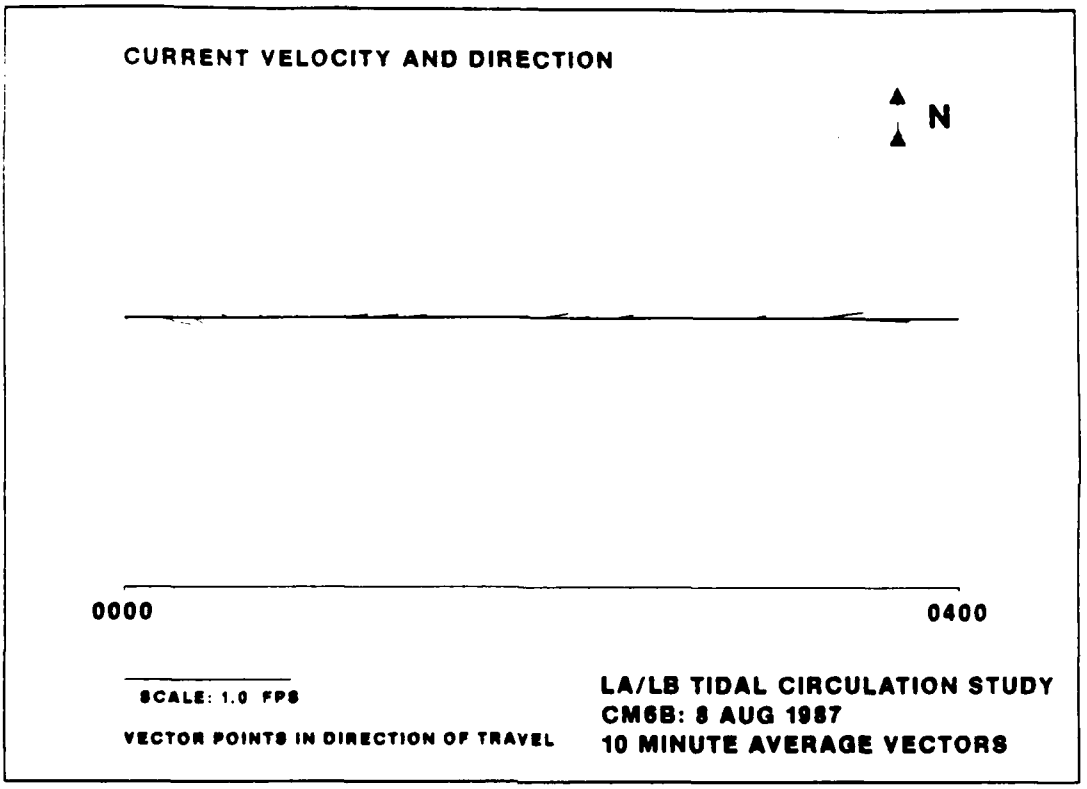

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3S: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

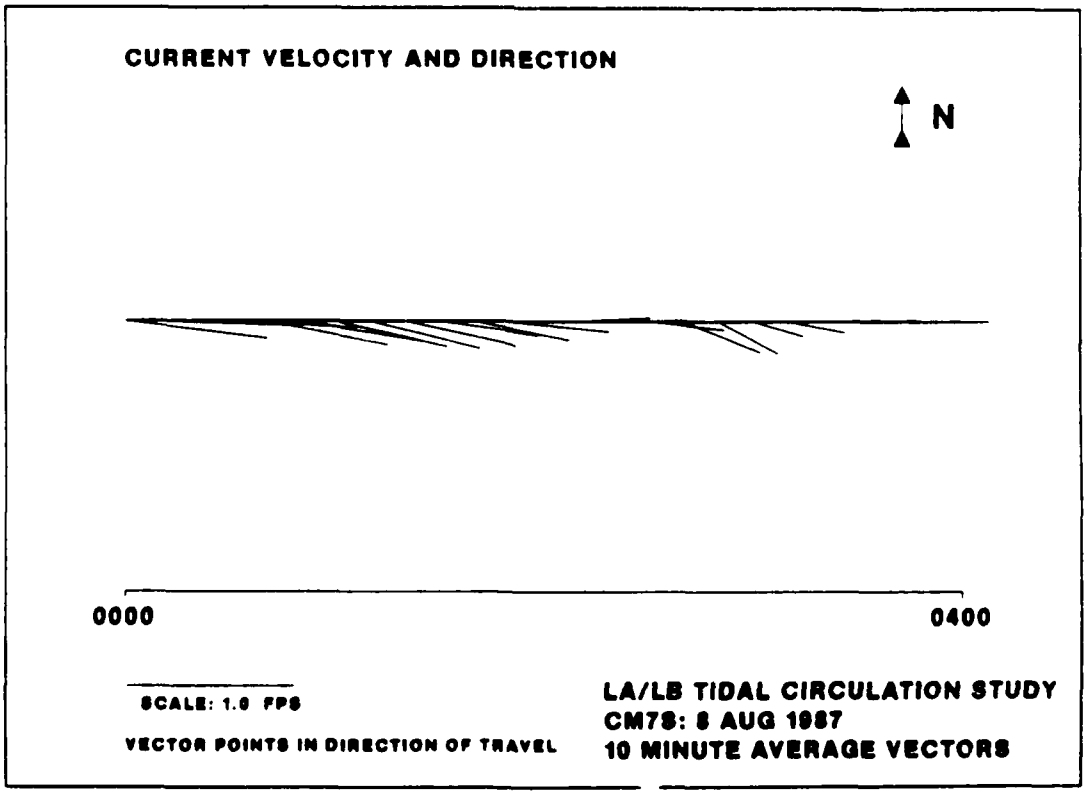

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3M: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

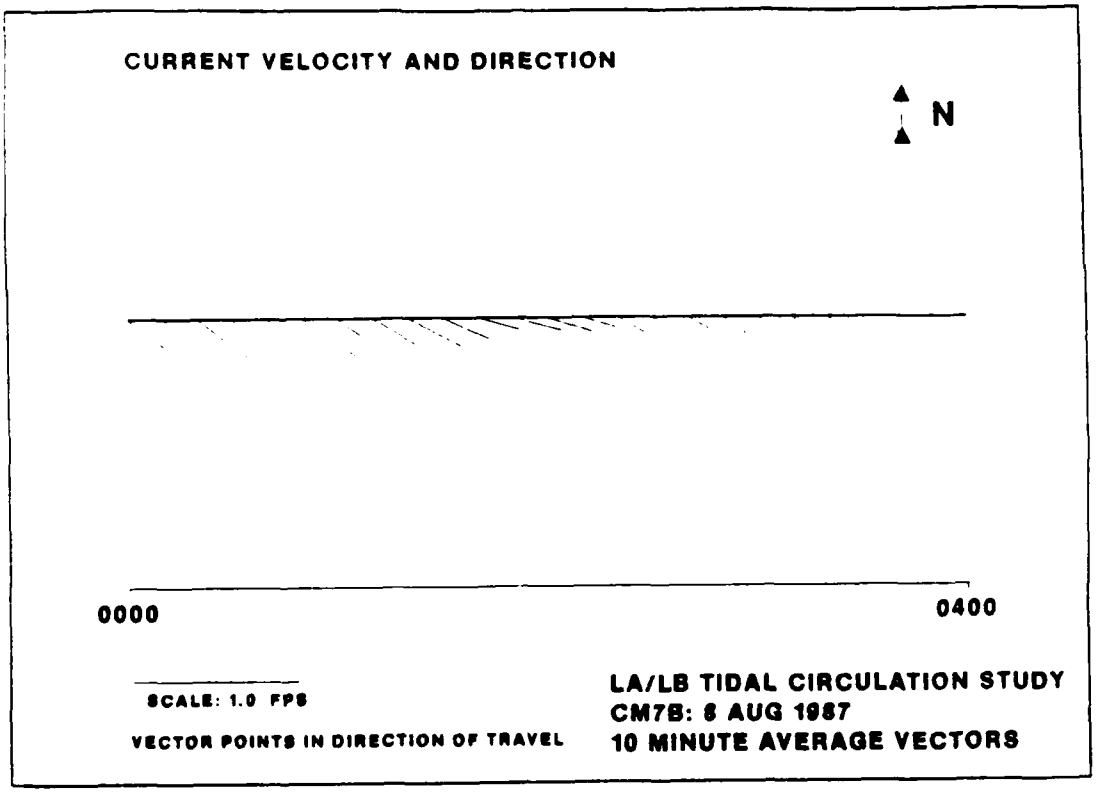

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM3B: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

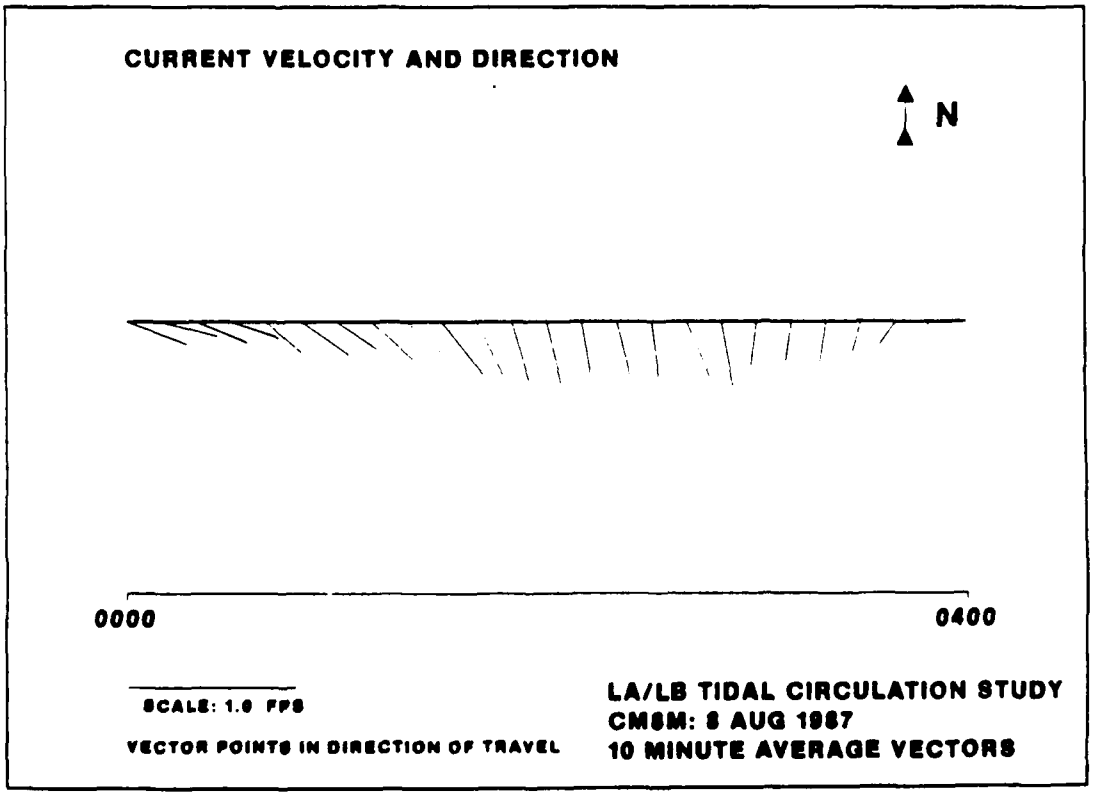

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM4B: 8 AUG 1987
10 MINUTE AVERAGE VECTORS


CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM6S: 8 AUG 1987
10 MINUTE AVERAGE VECTORS


CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM6B: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

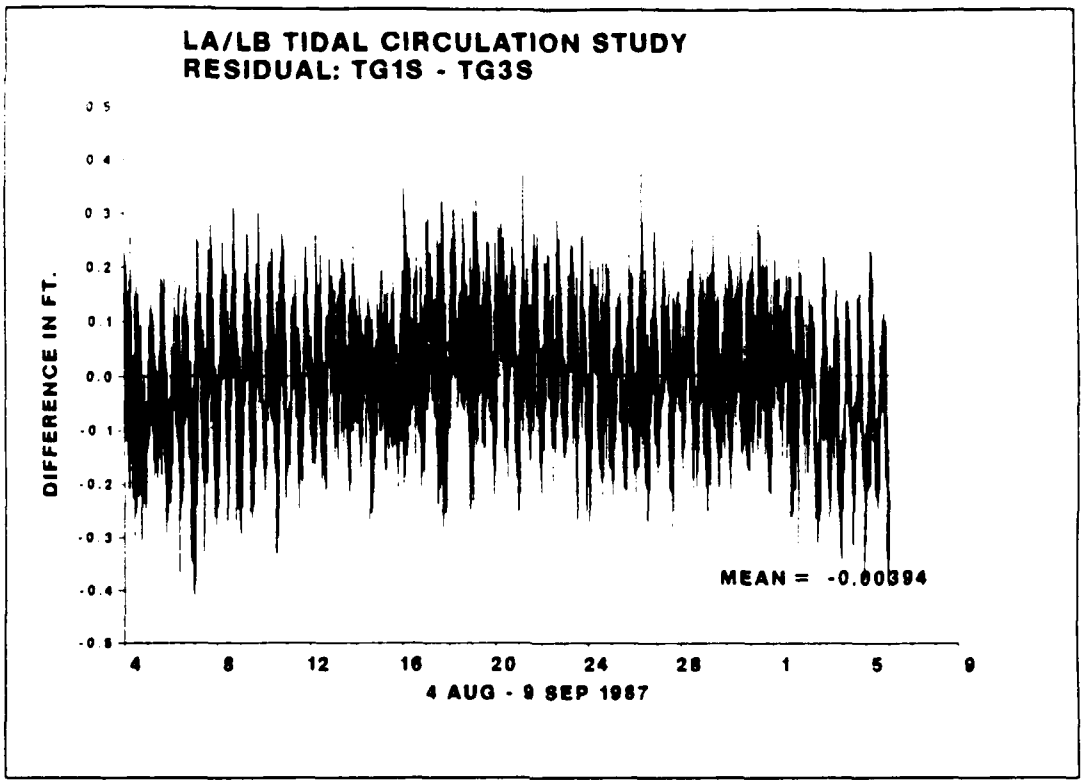

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM7S: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

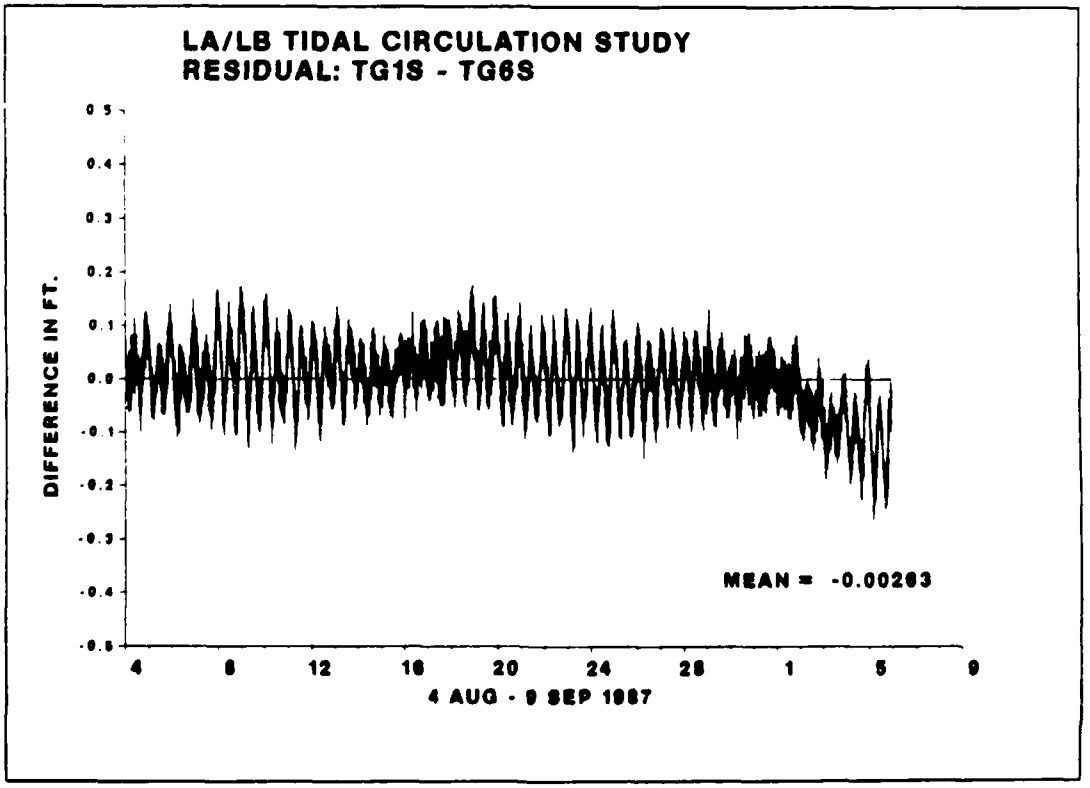

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM7B: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

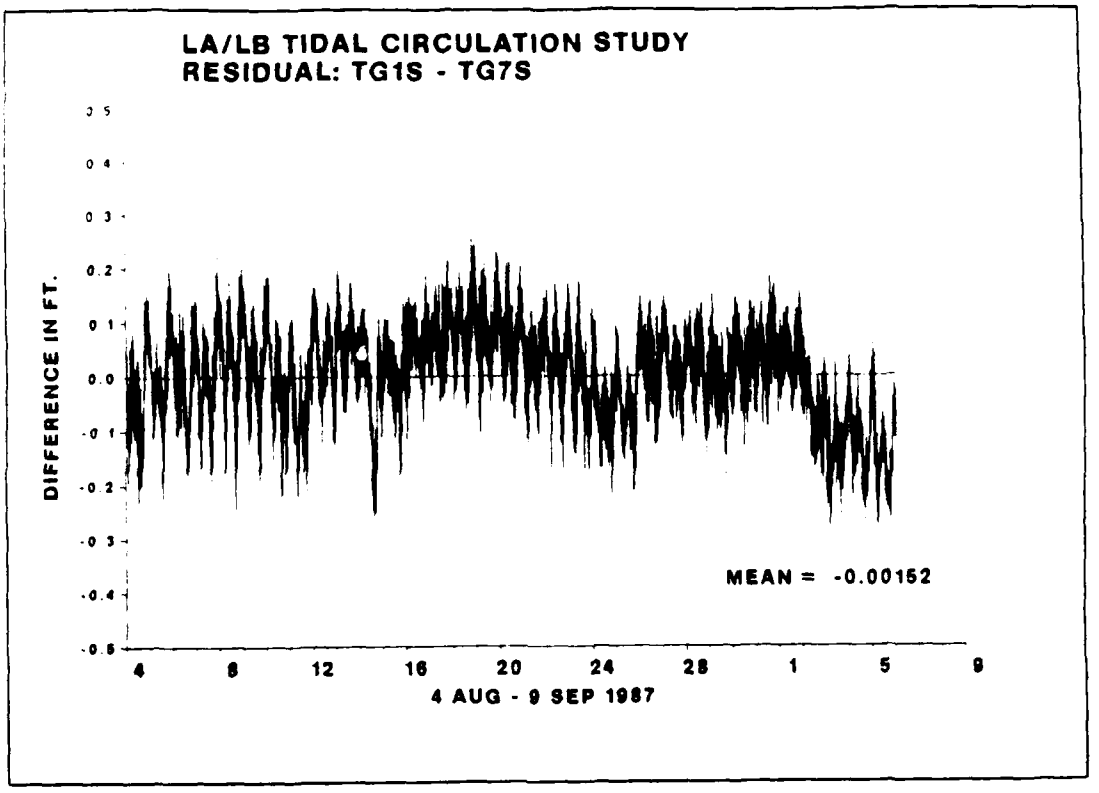

CURRENT VELOCITY AND DIRECTION
N
0000
0400
SCALE: 1.0 FPS
VECTOR POINTS IN DIRECTION OF TRAVEL
LA/LB TIDAL CIRCULATION STUDY
CM8M: 8 AUG 1987
10 MINUTE AVERAGE VECTORS

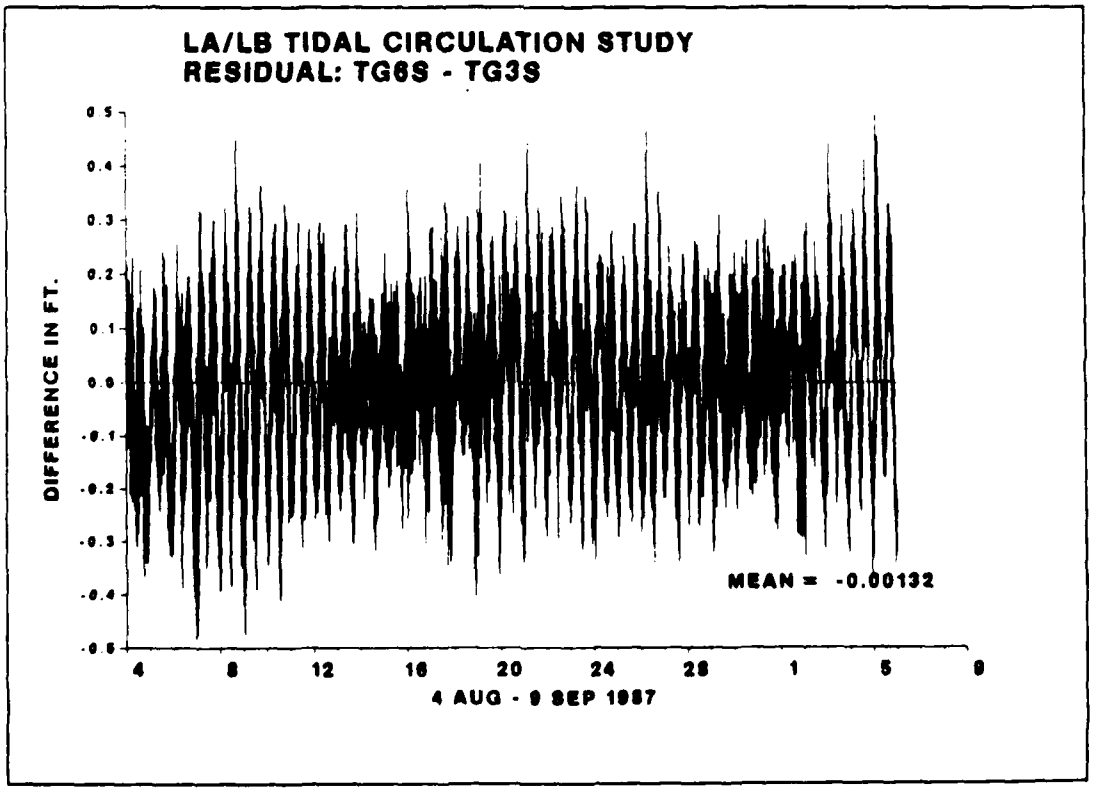
APPENDIX I: RESIDUAL TIDAL ELEVATION TIME SERIES PLOTS

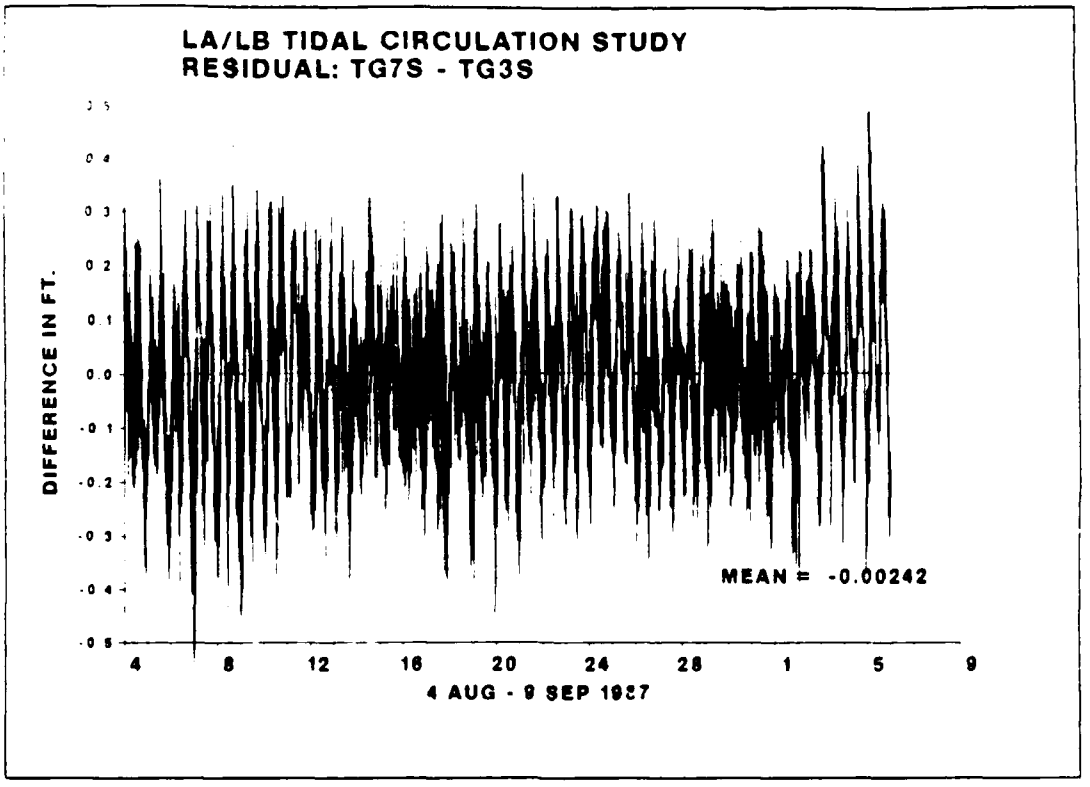
This appendix contains residual plots of tidal elevation time series. Time series are suffixed with S, M, and B, which stand for surface, middepth, and bottom, respectively.

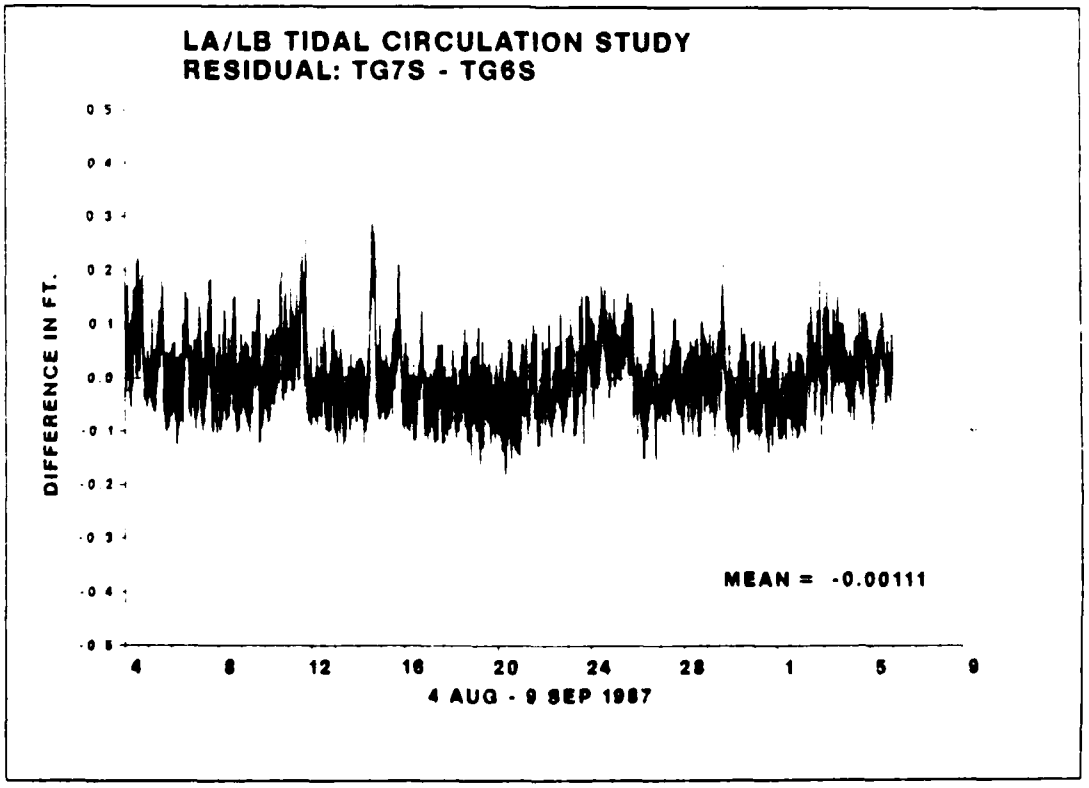

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00394
4
8
12
16
20
24
28
1
5
9
4 AUG - 9 SEP 1987

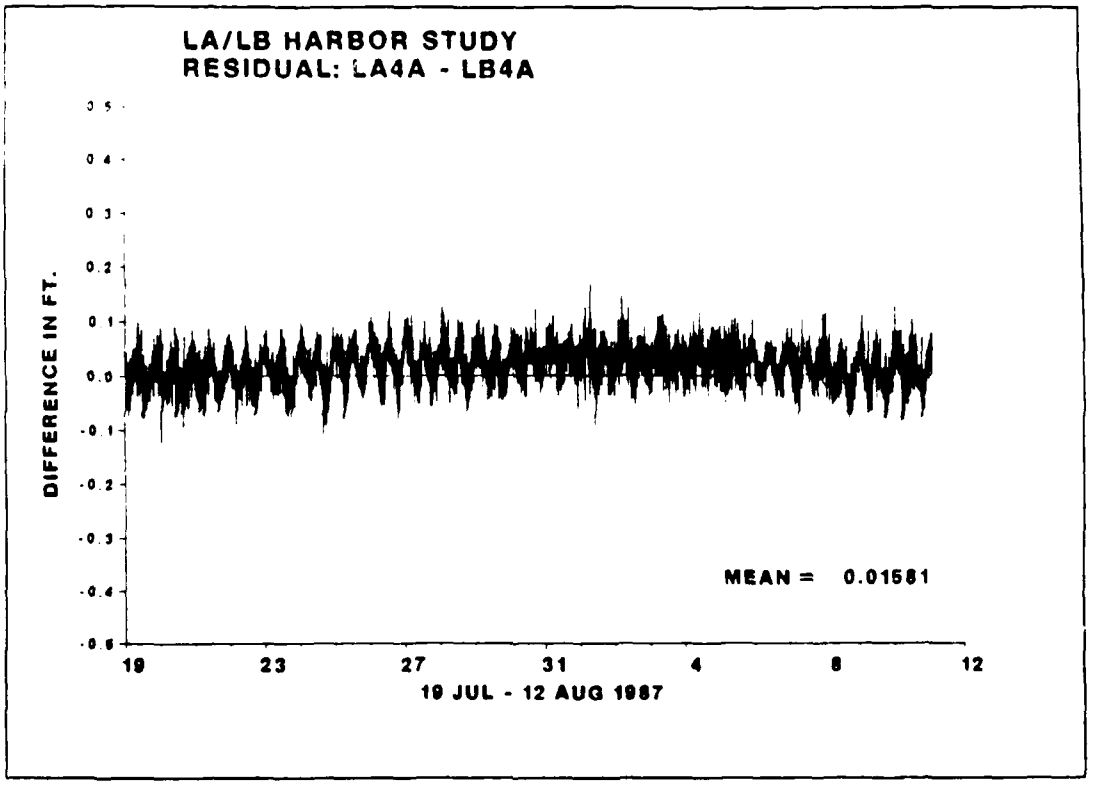

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG6S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00283
4
8
12
16
20
24
28
1
5
9
4 AUG - 9 SEP 1987

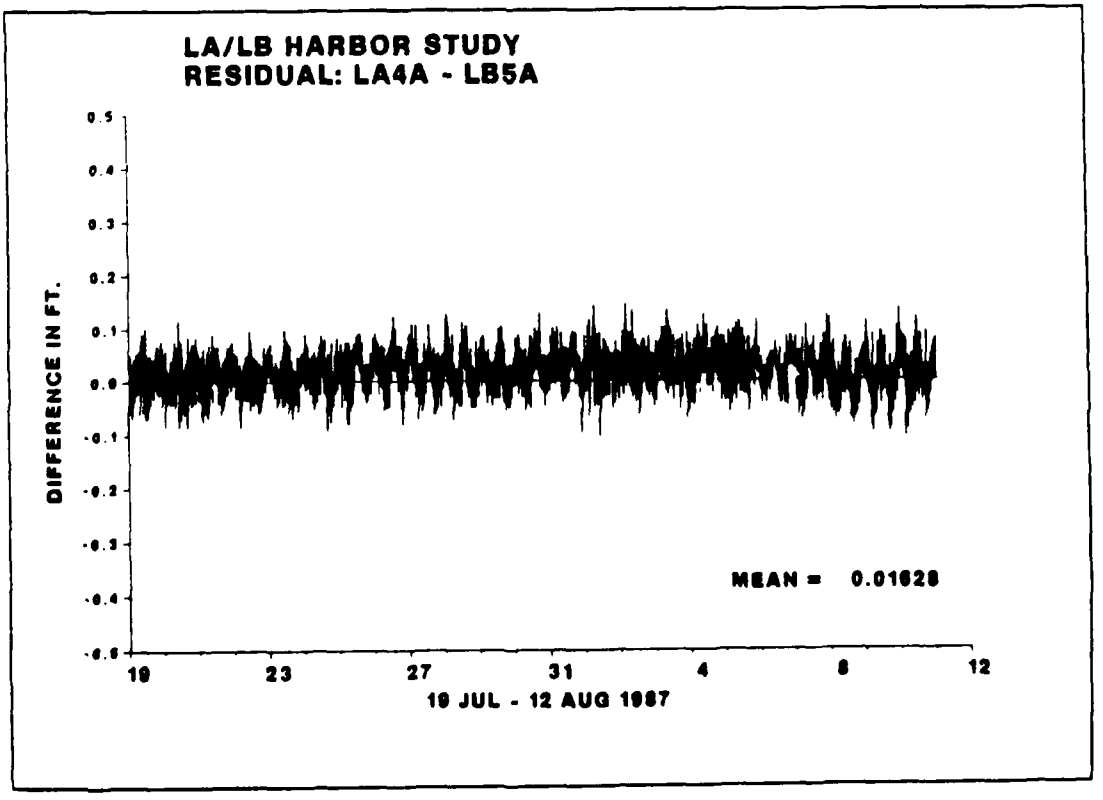

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG7S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00152
4
8
12
16
20
24
28
1
5
9
4 AUG - 9 SEP 1987

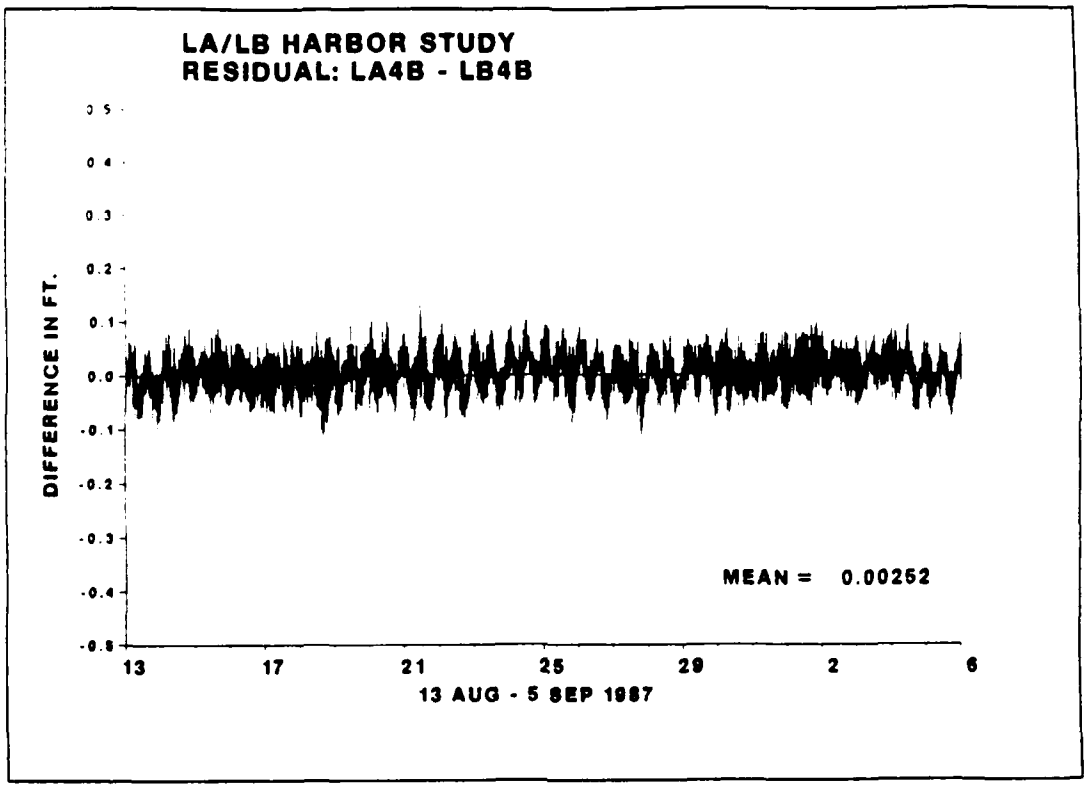

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG6S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00132
4
8
12
16
20
24
28
1
5
9
4 AUG - 9 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG7S - TG3S
DIFFERENCE IN FT.
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00242
4
8
12
16
20
24
28
1
5
9
4 AUG - 9 SEP 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG7S - TG6S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00111
4
8
12
16
20
24
28
1
5
9
4 AUG - 9 SEP 1987


LA/LB HARBOR STUDY
RESIDUAL: LA4A - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01581
19
23
27
31
4
8
12
19 JUL - 12 AUG 1987


LA/LB HARBOR STUDY
RESIDUAL: LA4A - LB5A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01628
19
23
27
31
4
8
12
19 JUL - 12 AUG 1987


LA/LB HARBOR STUDY
RESIDUAL: LA4B - LB4B
DIFFERENCE IN FT.
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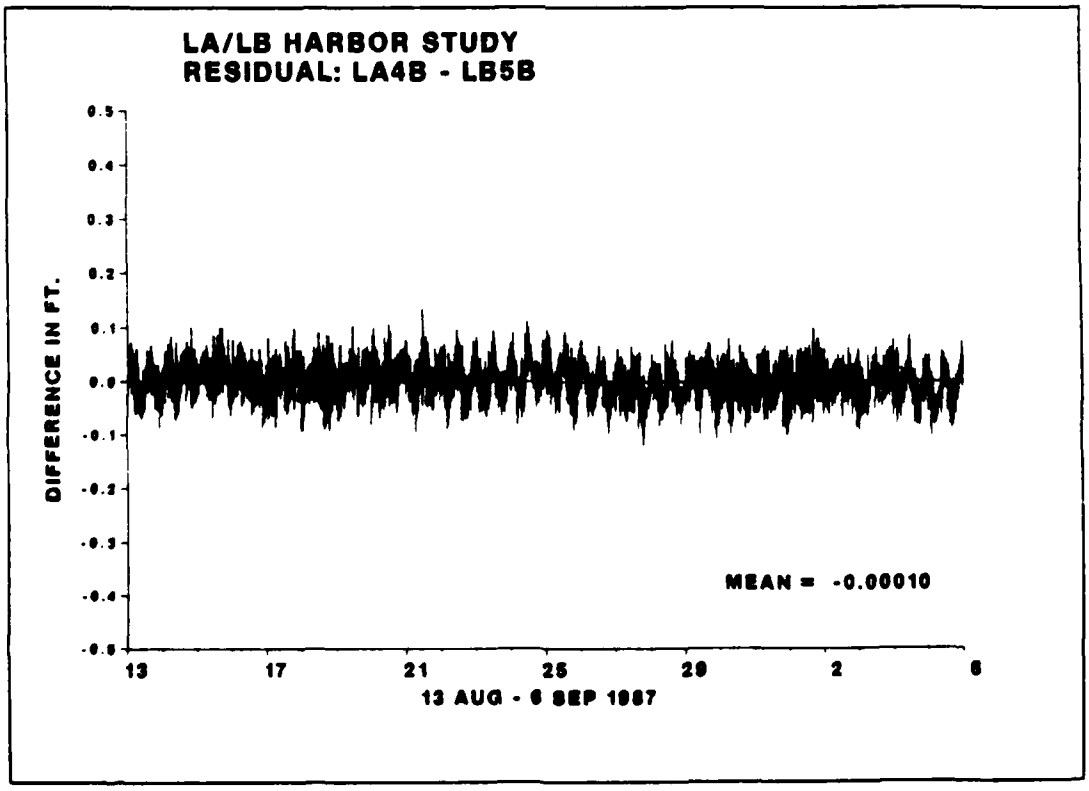
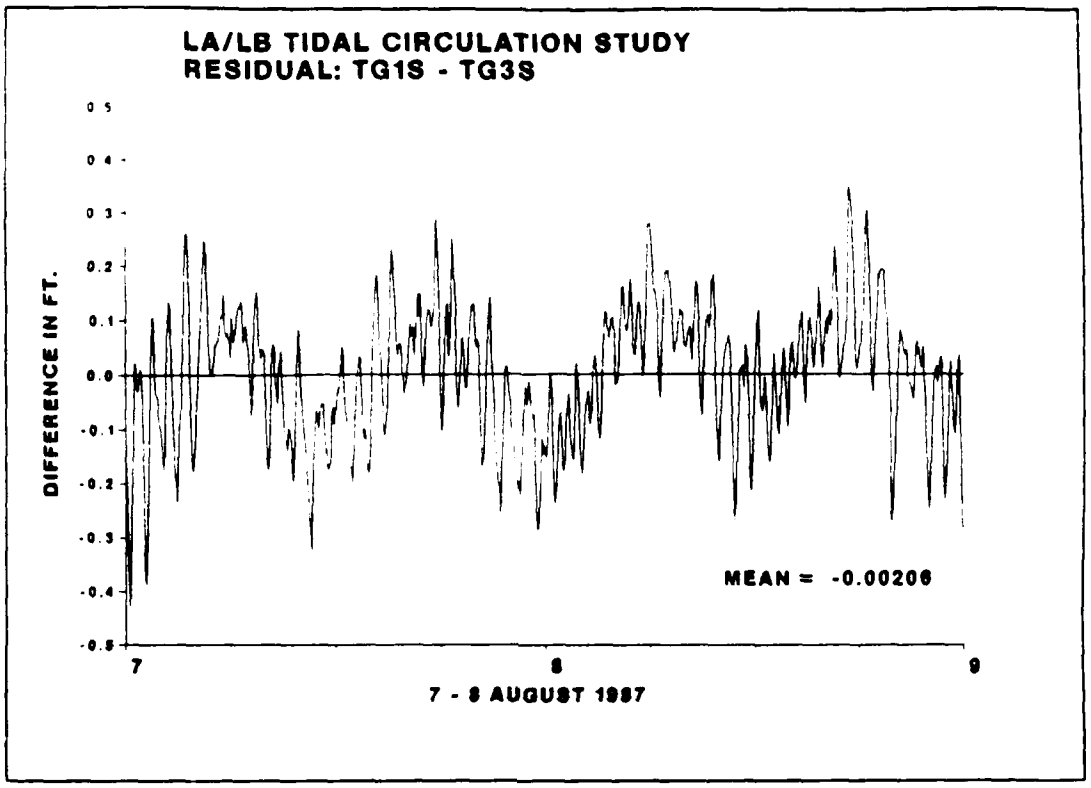
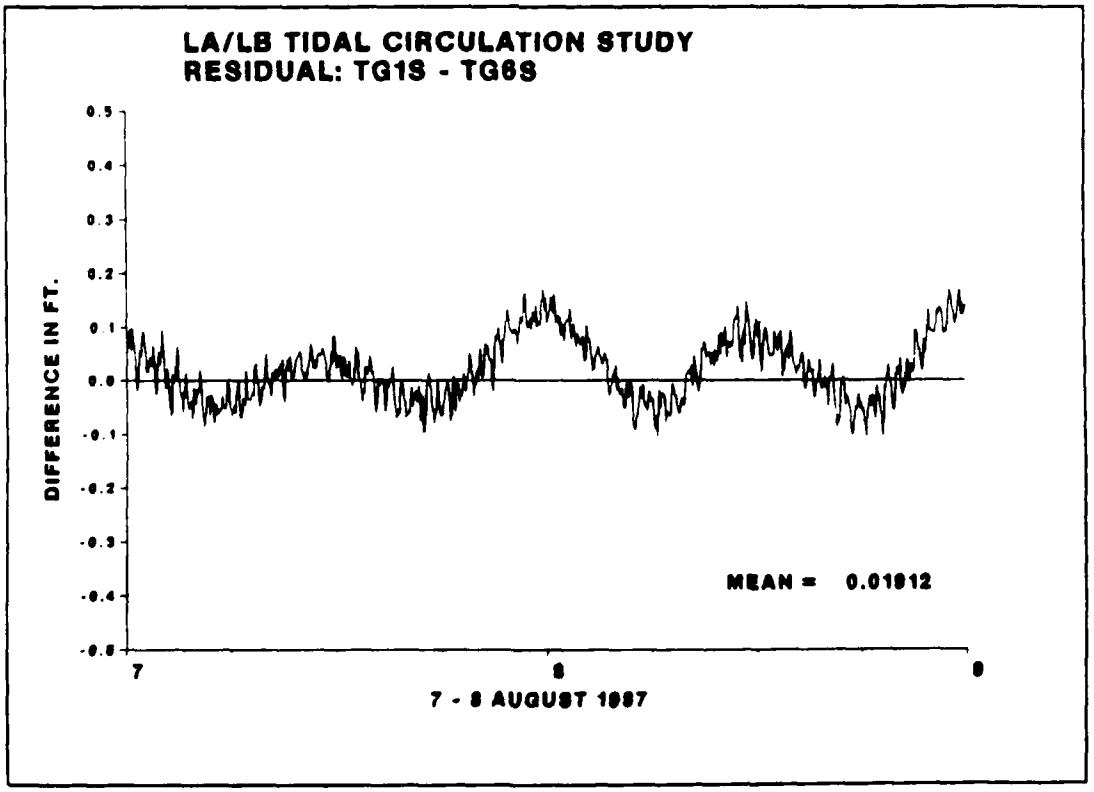
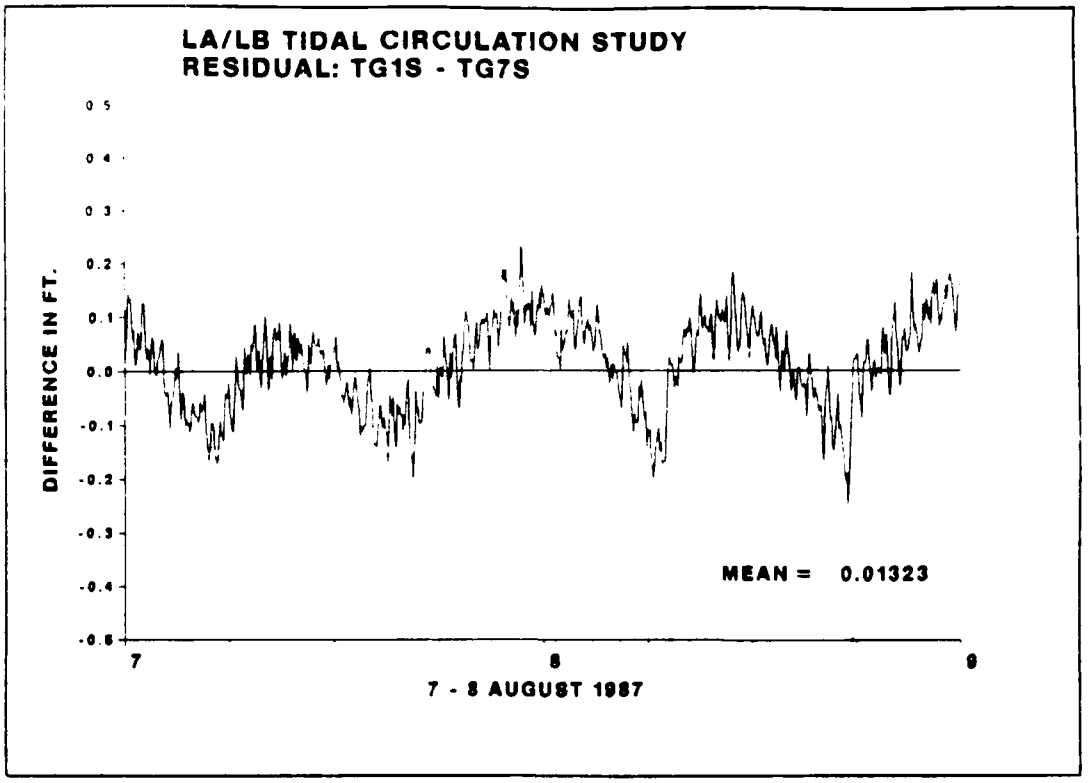
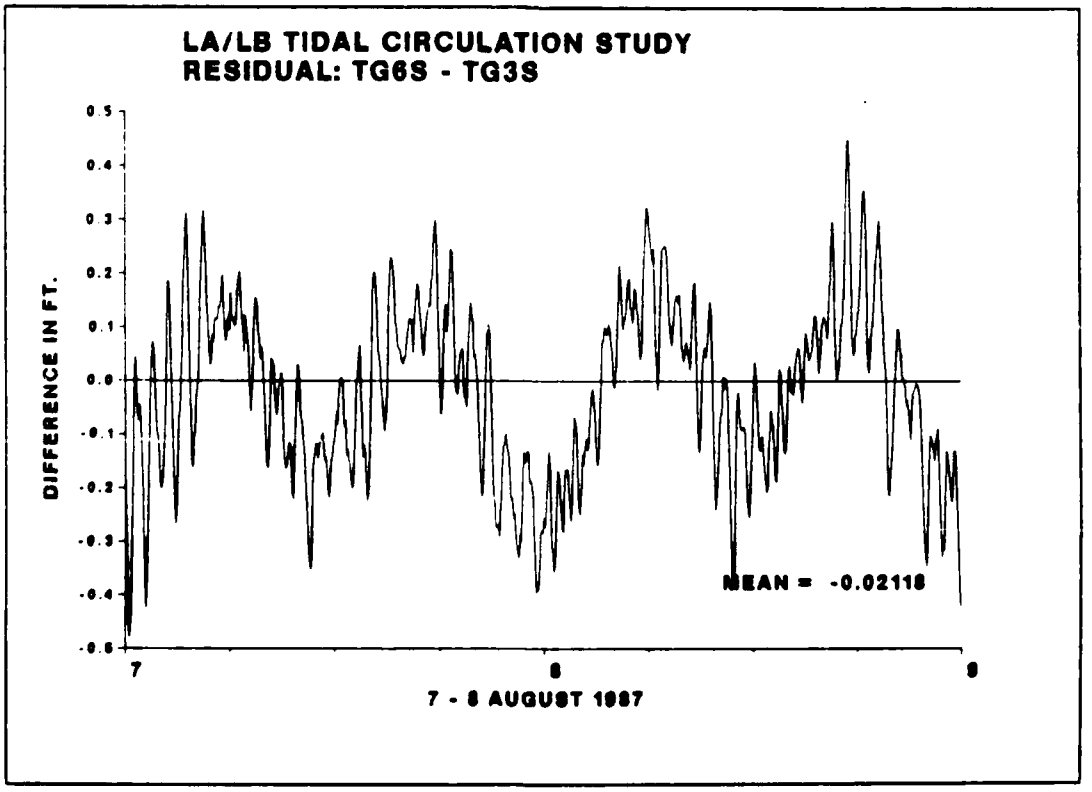
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00252
13
17
21
25
29
2
6
13 AUG - 5 SEP 1987

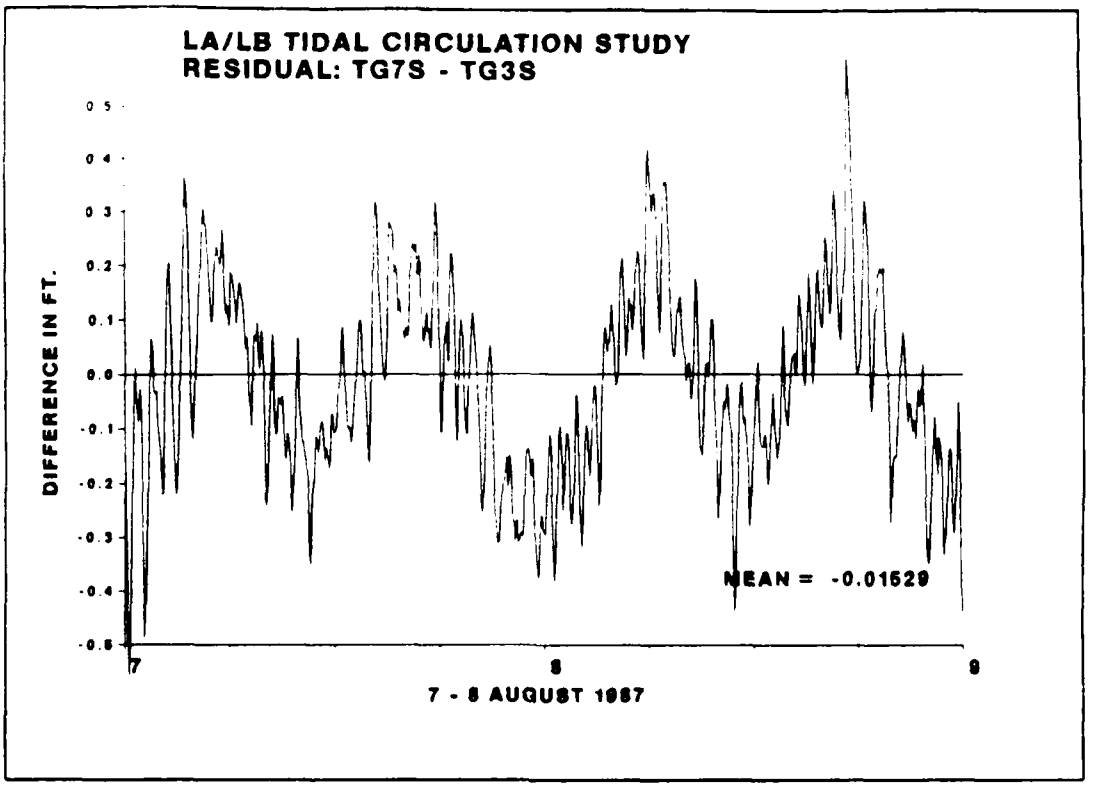

LA/LB HARBOR STUDY
RESIDUAL: LA4B - LB5B
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00010
13
17
21
25
29
2
6
13 AUG - 6 SEP 1987

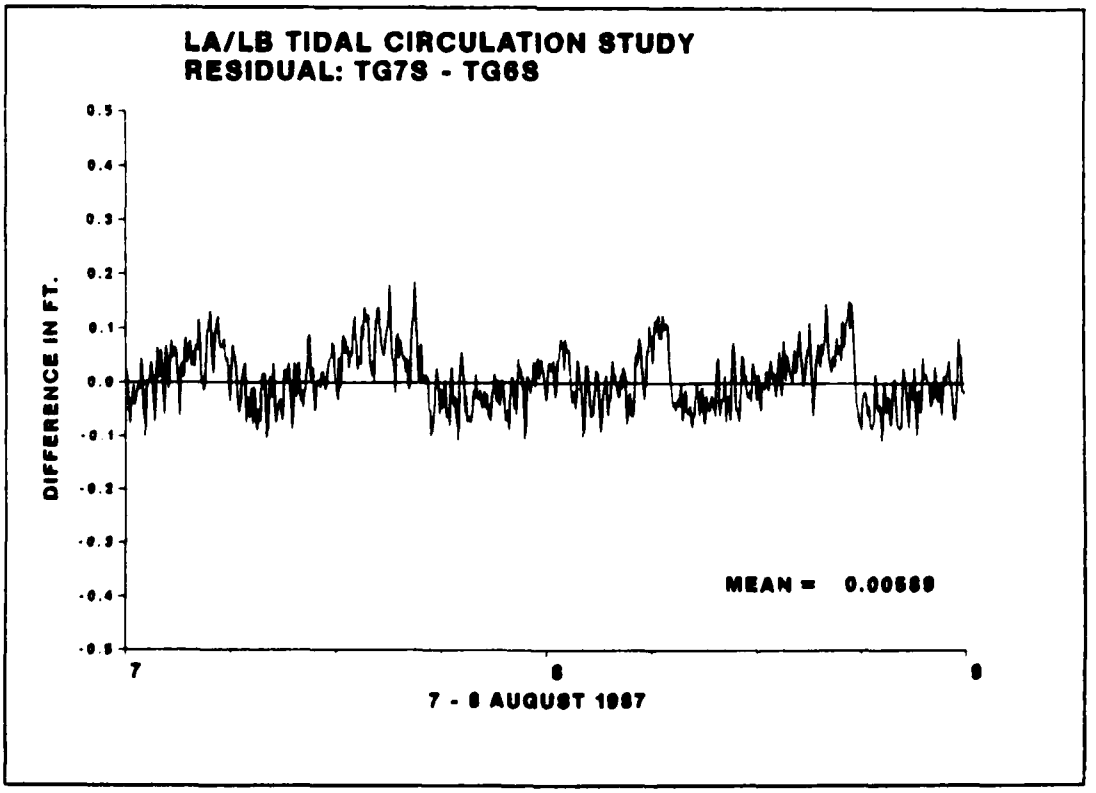

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00206
7
8
9
7 - 8 AUGUST 1987

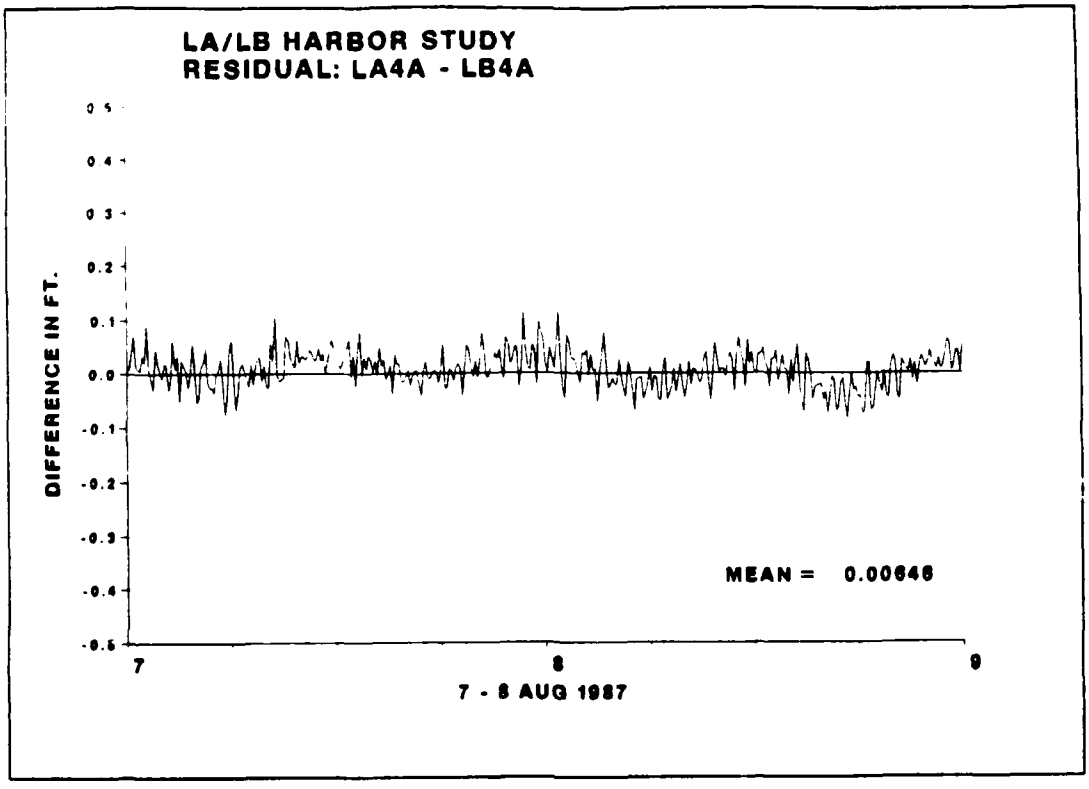

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG6S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01912
7
8
9
7 - 8 AUGUST 1987

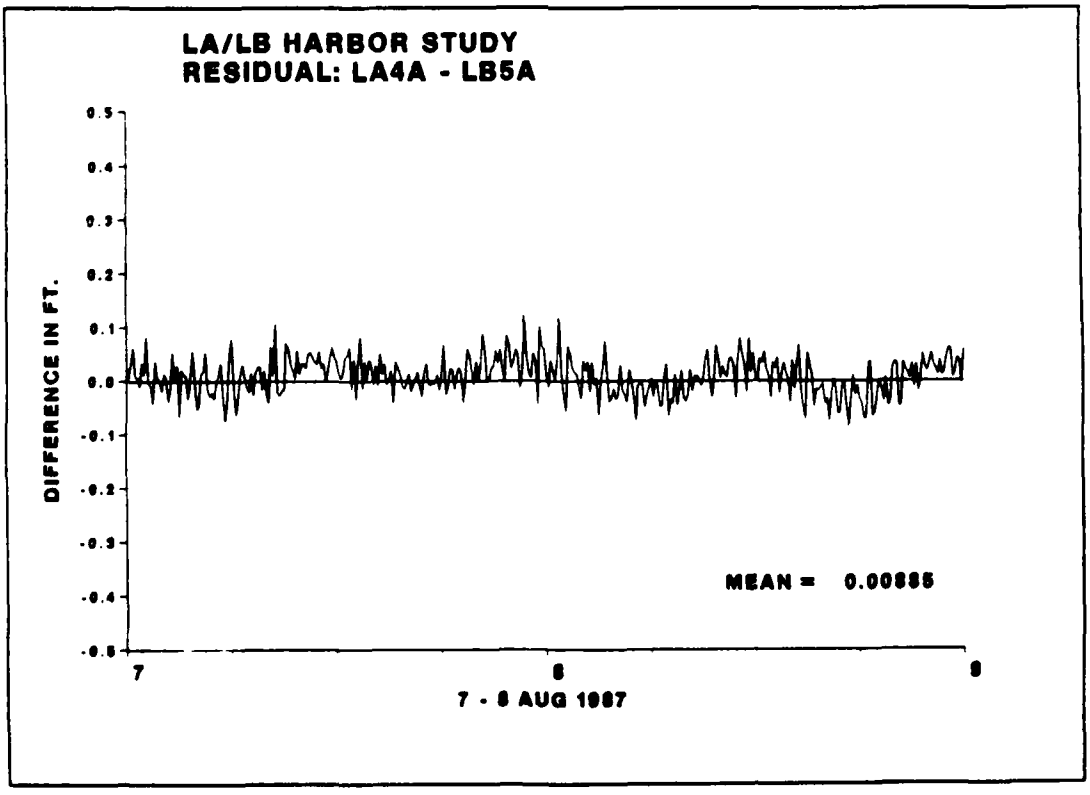

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG7S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01323
7
8
9
7 - 8 AUGUST 1987

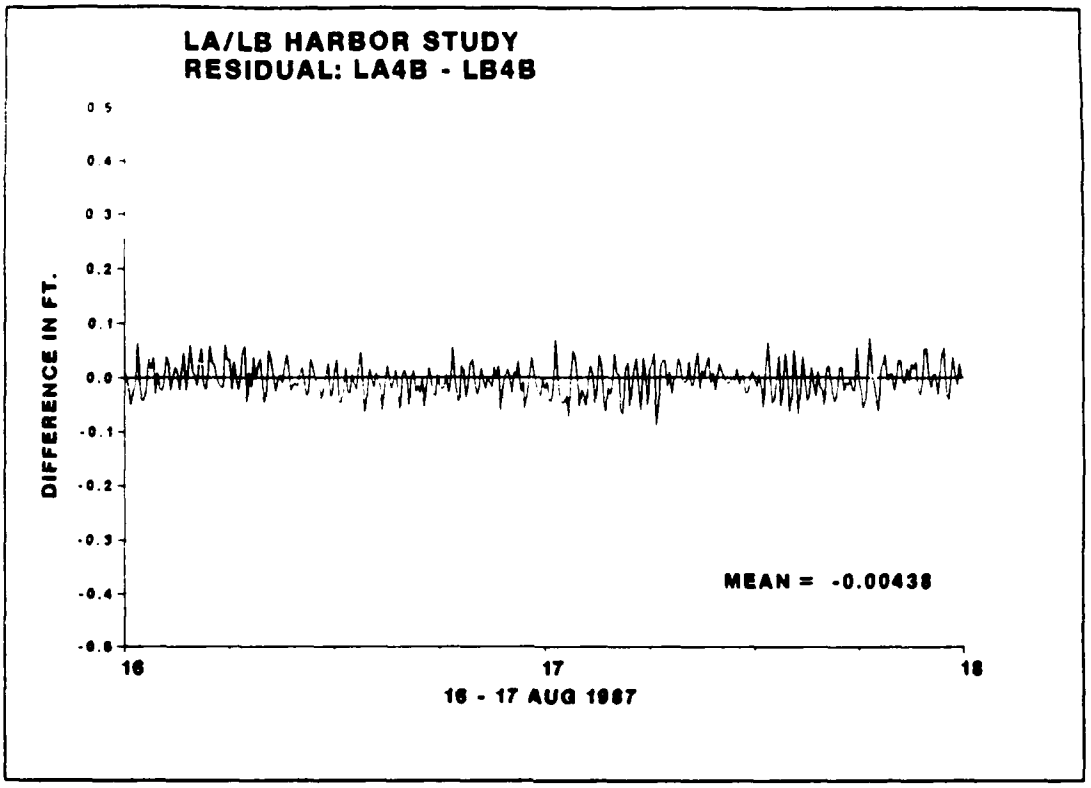

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG6S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.02118
7
8
9
7 - 8 AUGUST 1987

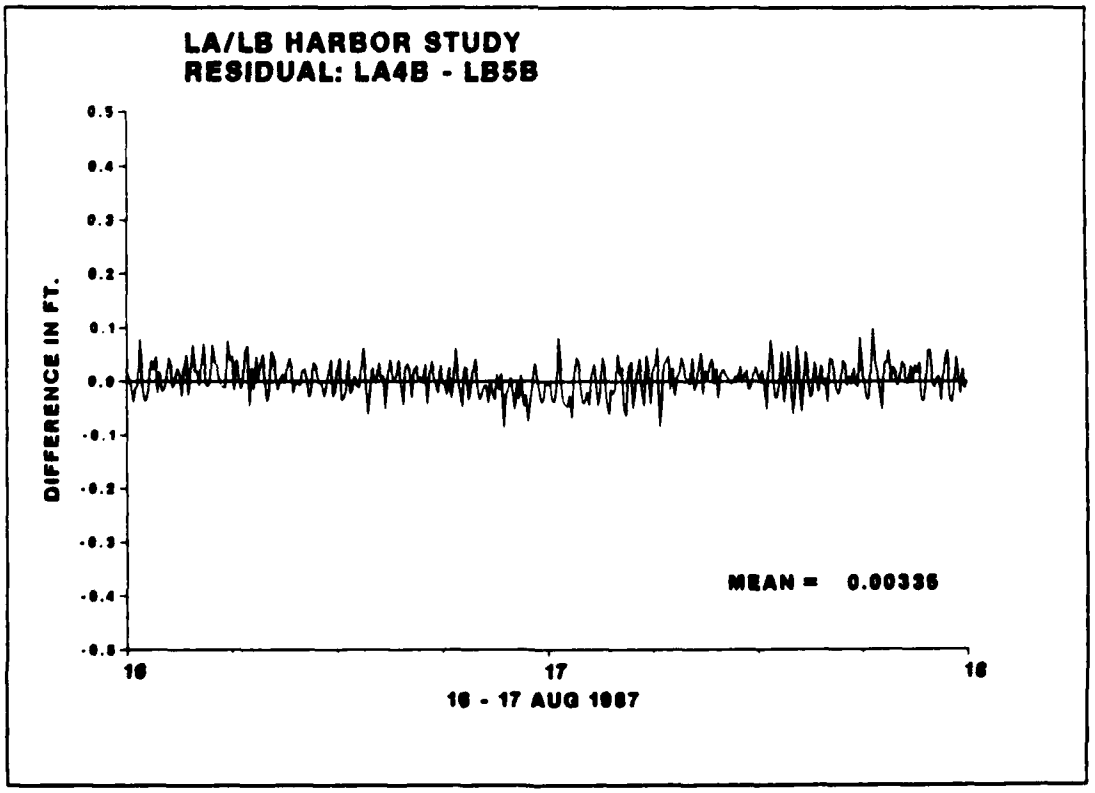

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG7S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.01529
7
8
9
7 - 8 AUGUST 1987

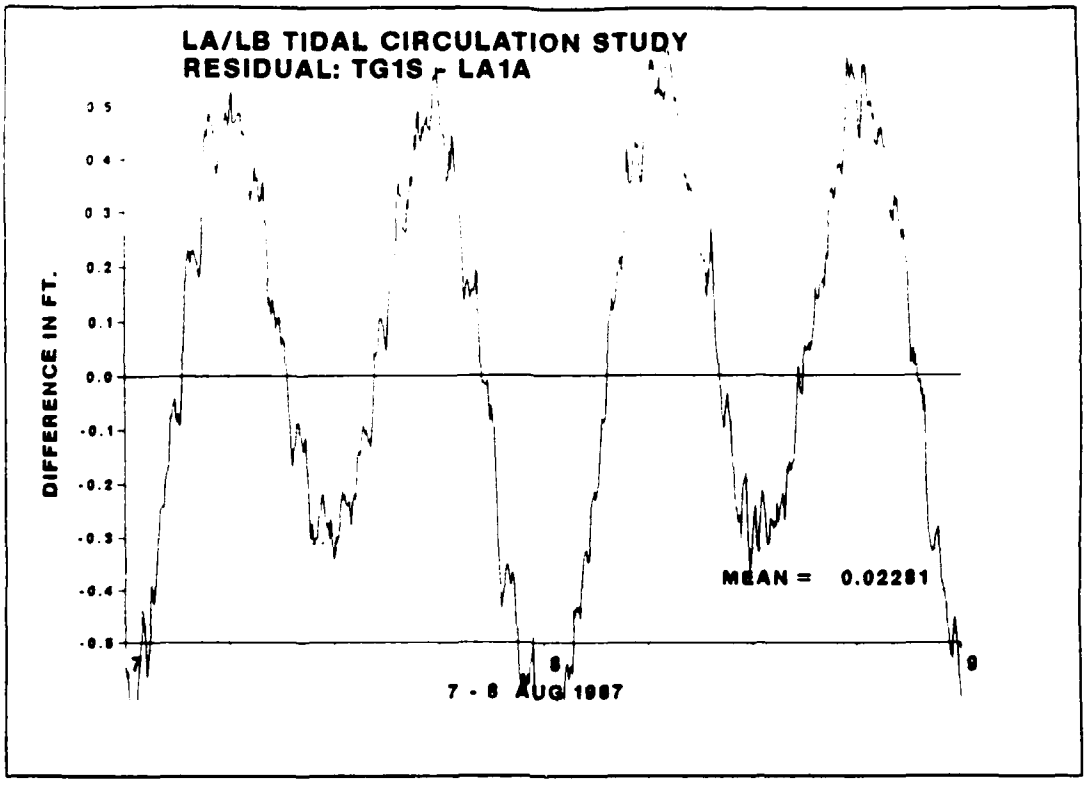

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG7S - TG6S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00589
7
8
9
7 - 8 AUGUST 1987

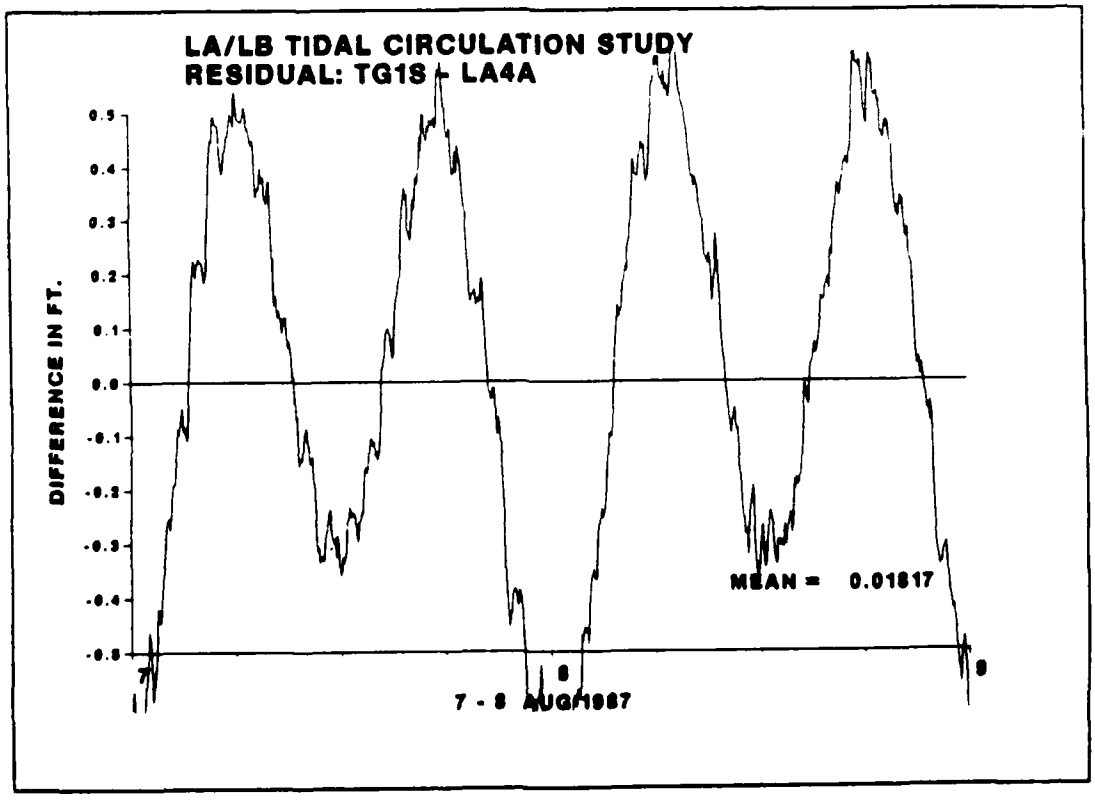

LA/LB HARBOR STUDY
RESIDUAL: LA4A - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00646
7
8
9
7 - 8 AUG 1987

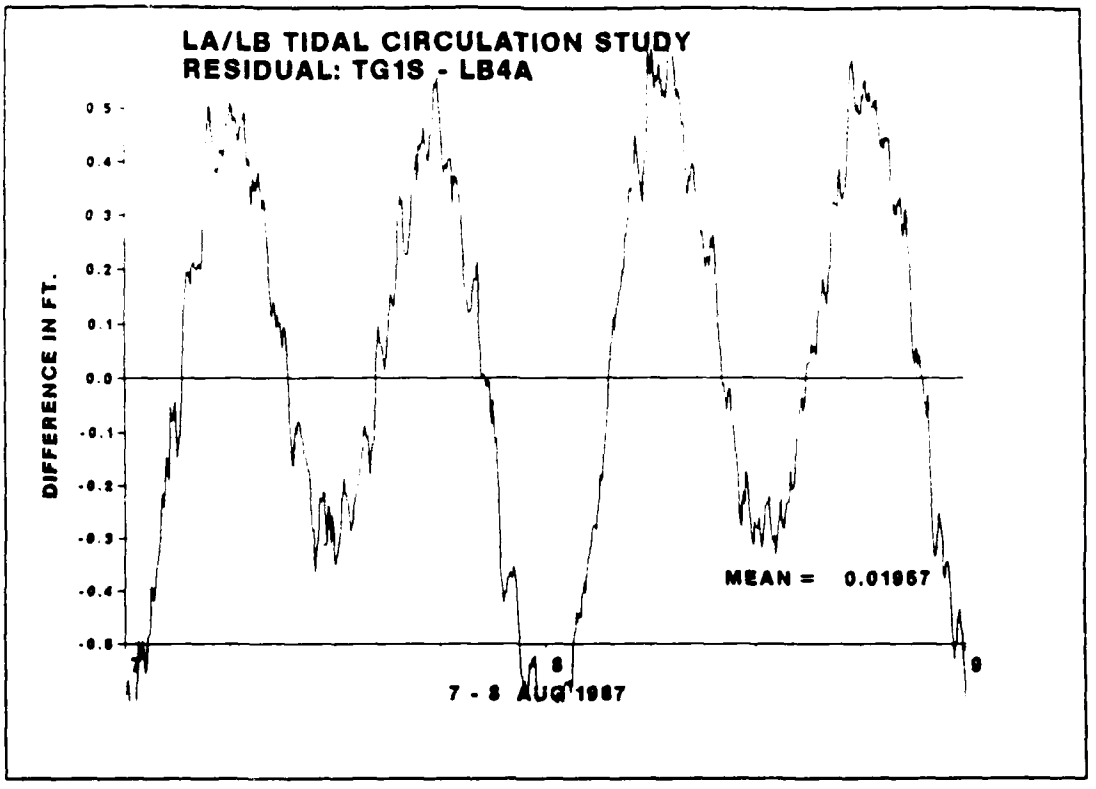

LA/LB HARBOR STUDY
RESIDUAL: LA4A - LB5A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00885
7
8
9
7 - 8 AUG 1987

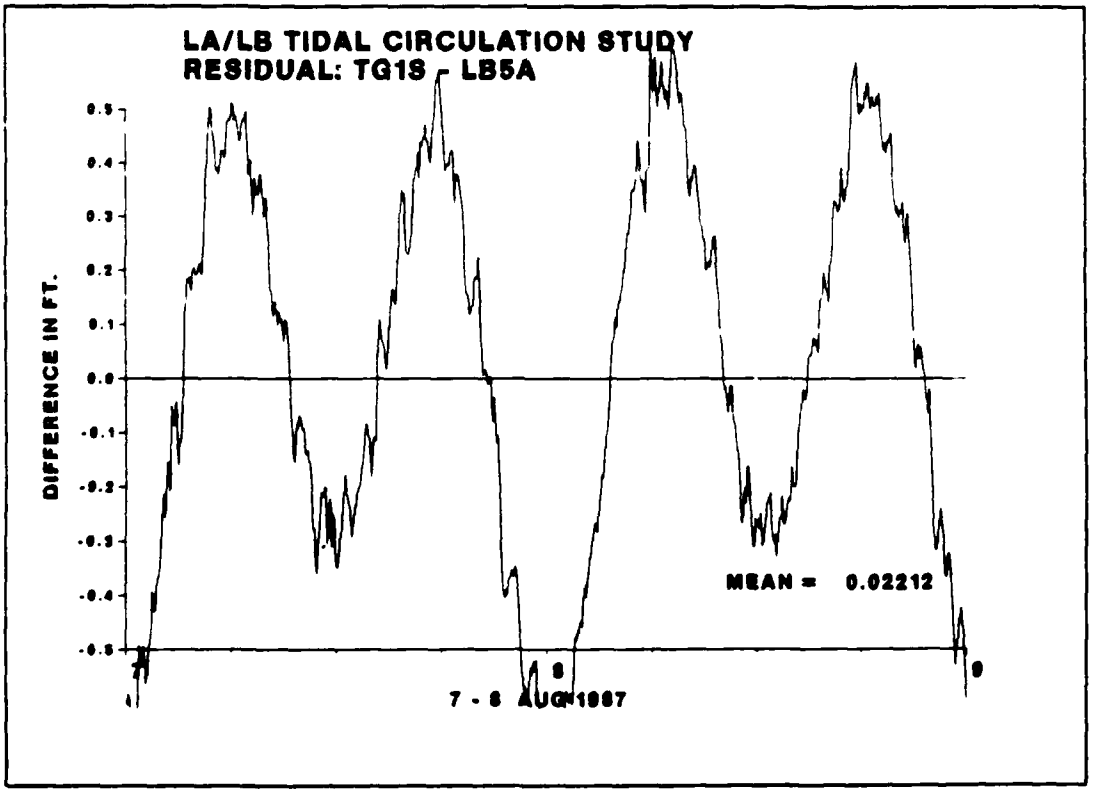

LA/LB HARBOR STUDY
RESIDUAL: LA4B - LB4B
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00438
16
17
18
16 - 17 AUG 1987

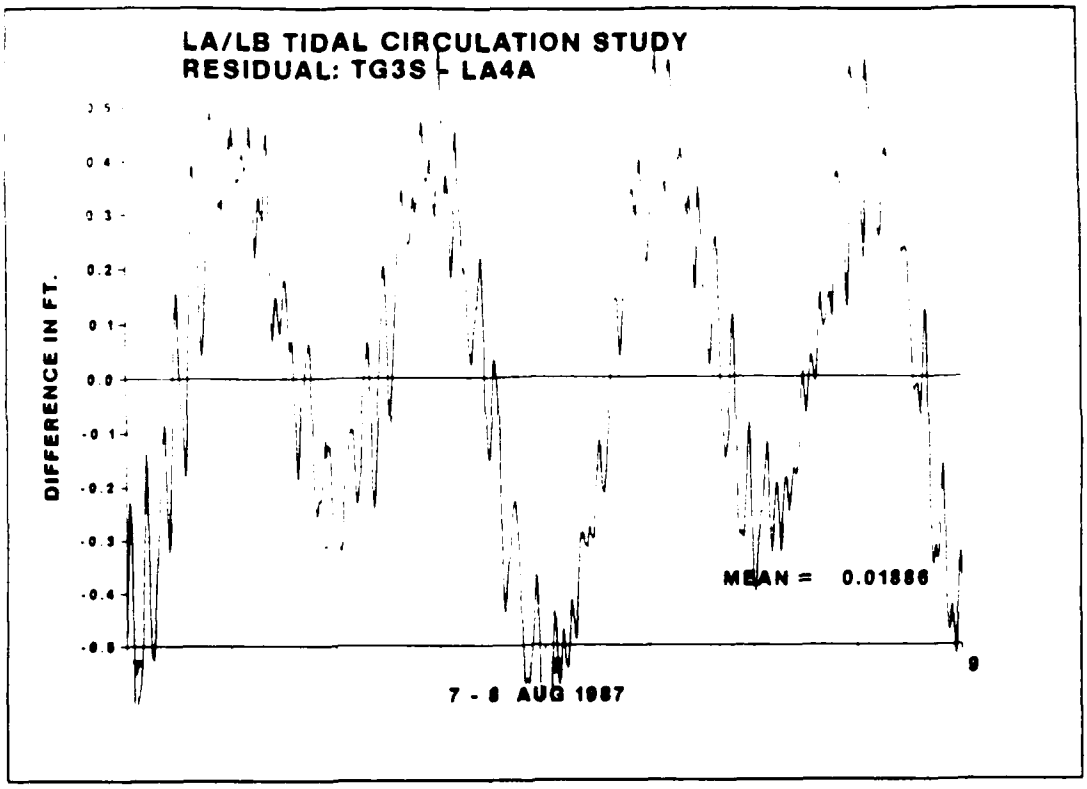

LA/LB HARBOR STUDY
RESIDUAL: LA4B - LB5B
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00335
16
17
18
16 - 17 AUG 1987

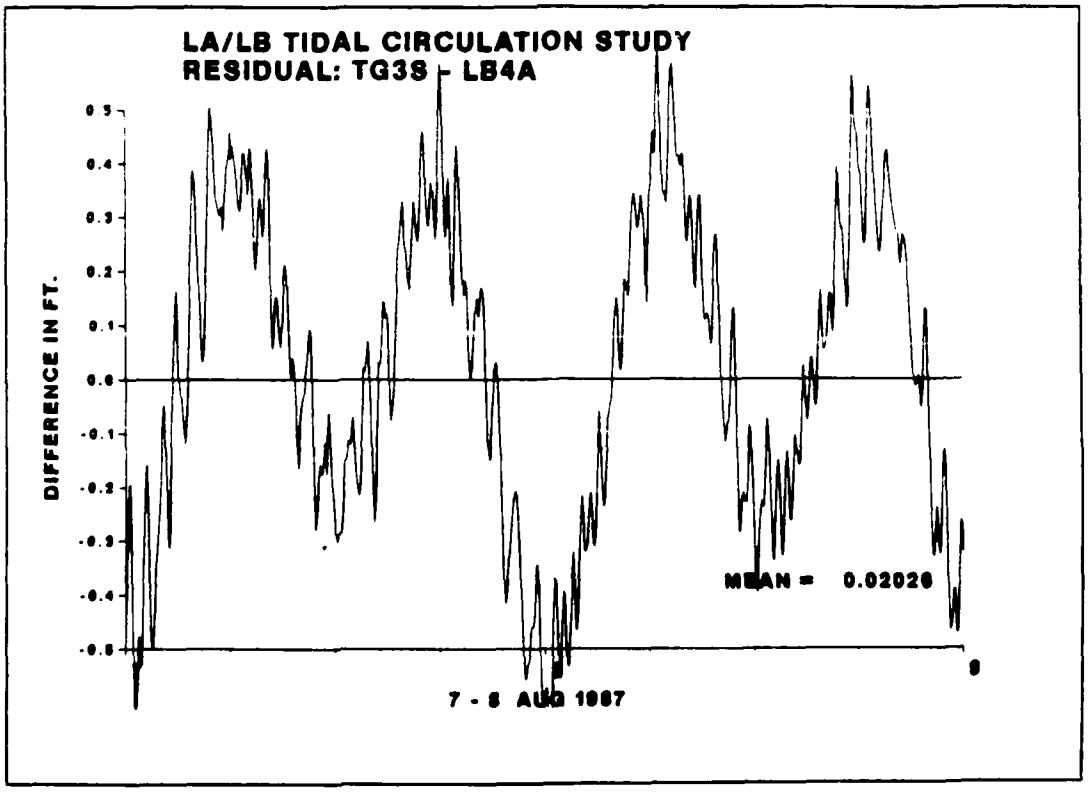

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LA1A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.02281
8
7 - 8 AUG 1987

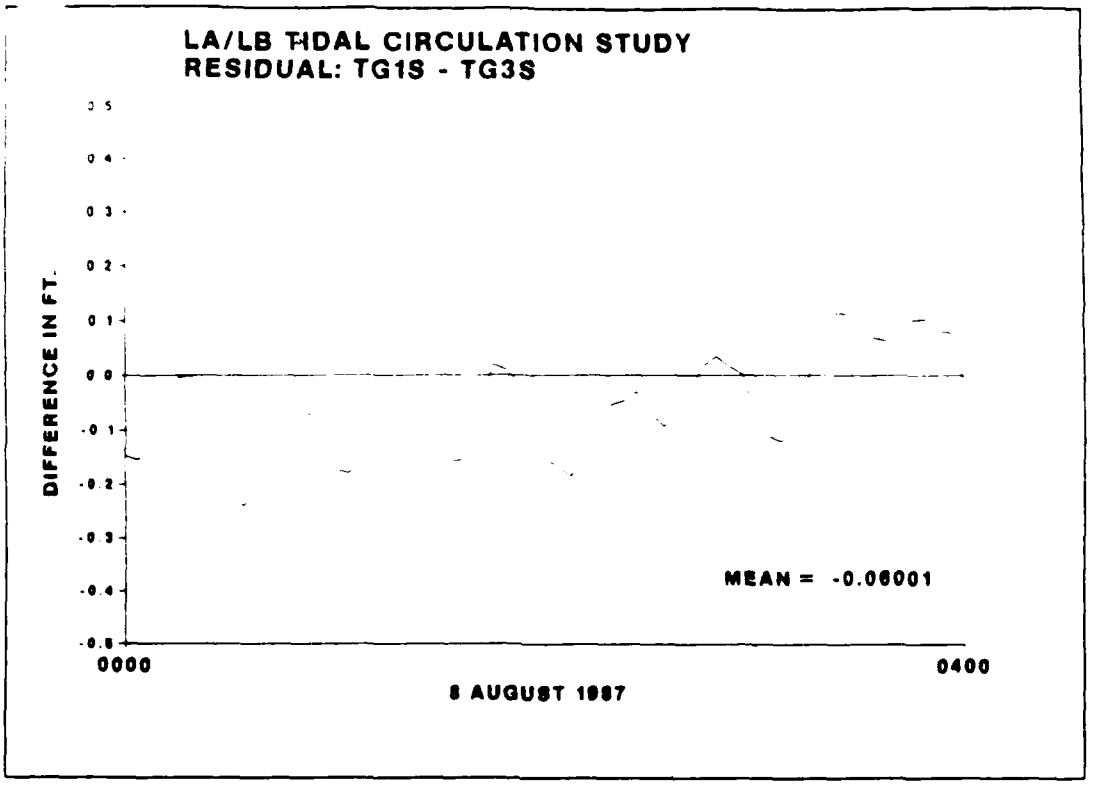

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LA4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01817
8
7 - 8 AUG 1987

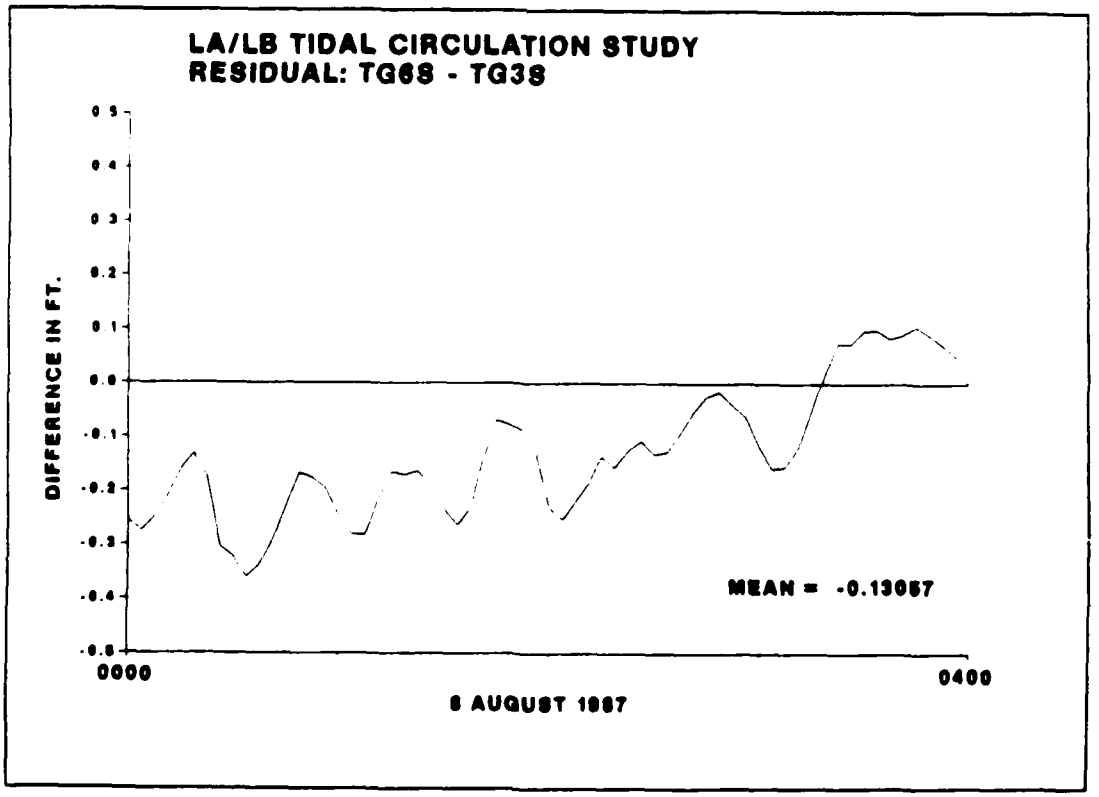

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01957
7 - 8 AUG 1987

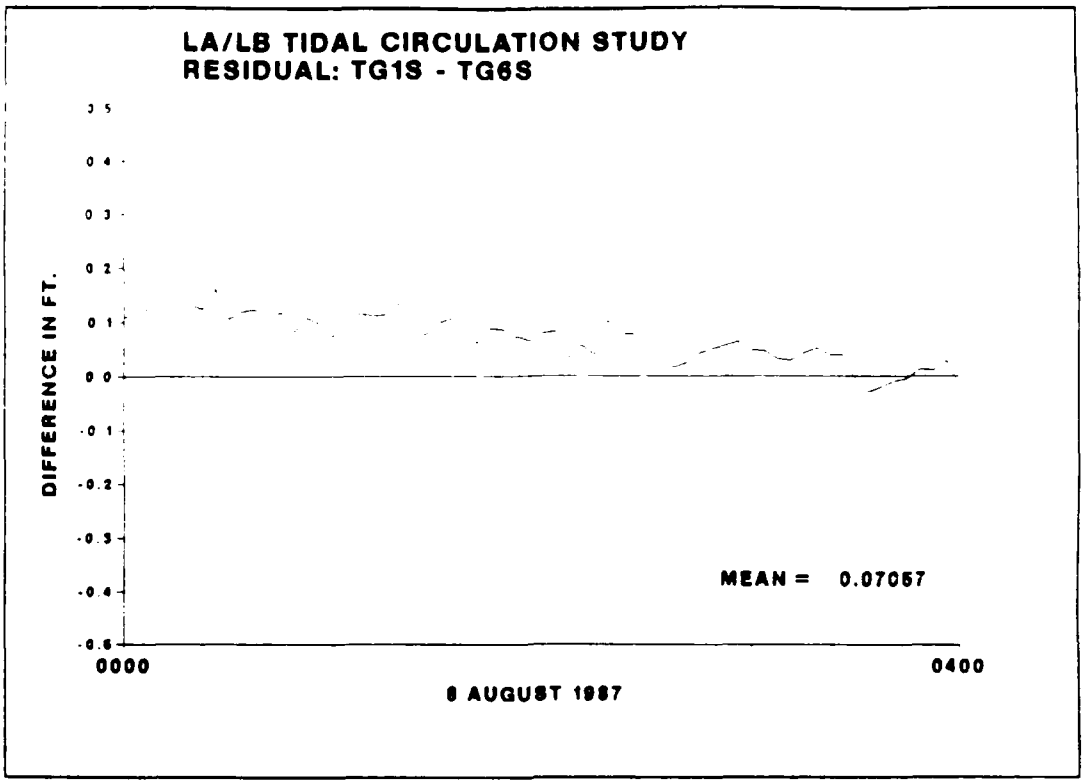

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LB5A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.02212
7 - 8 AUG 1987

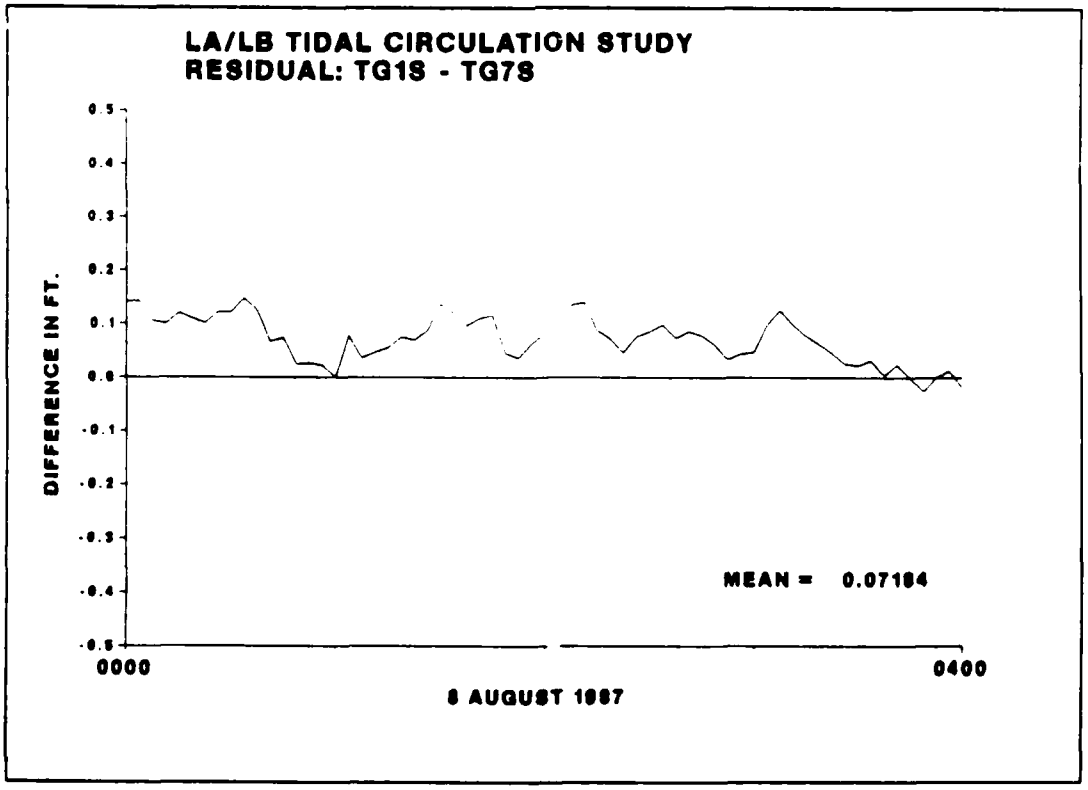

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG3S - LA4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01886
7 - 8 AUG 1987

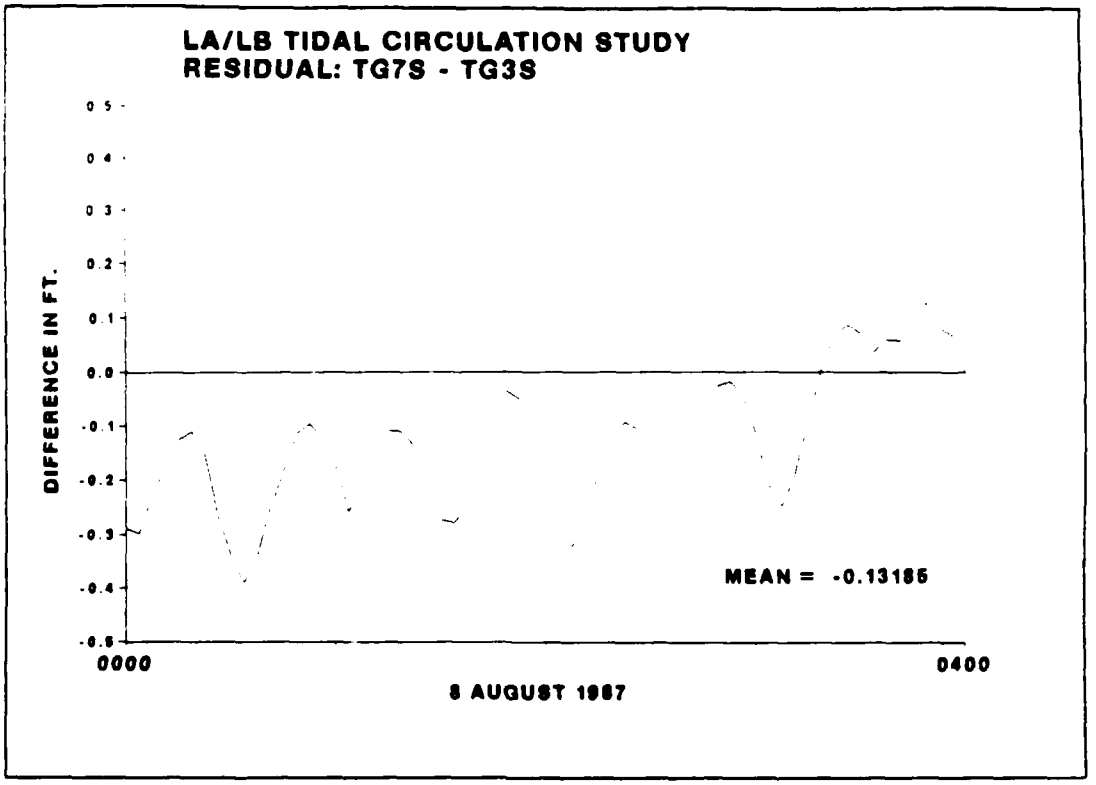

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG3S - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.02028
7 - 8 AUG 1987

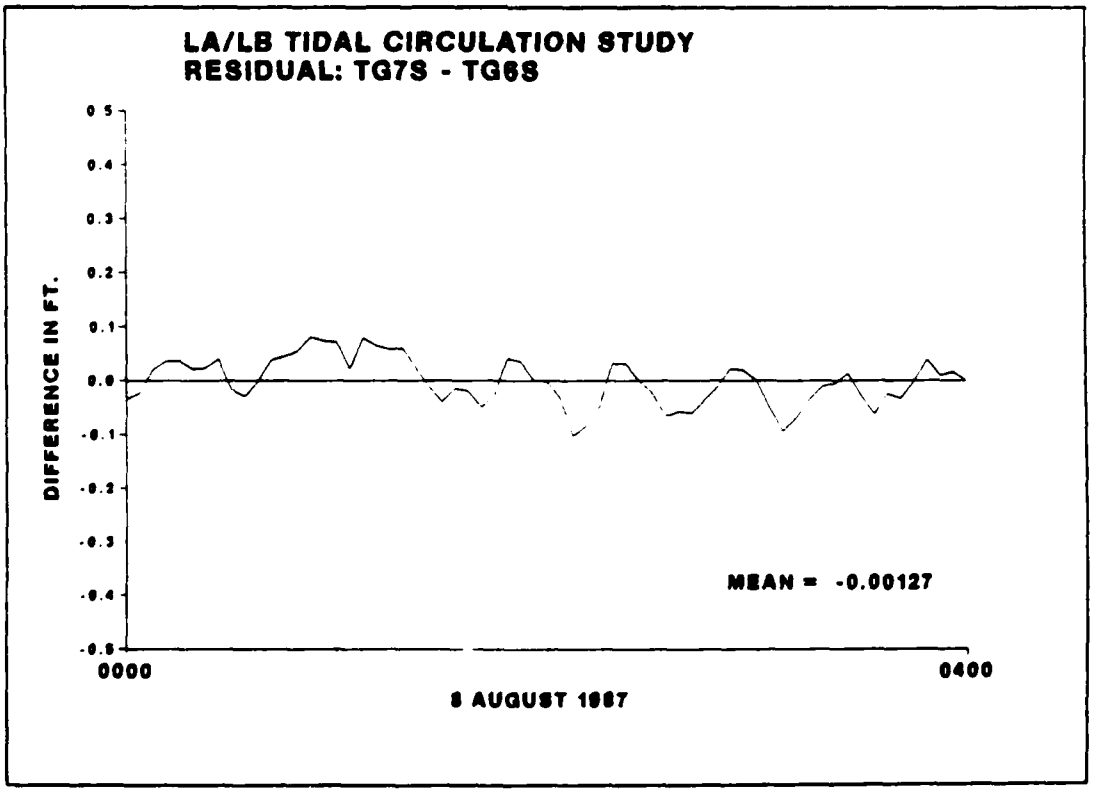

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.06001
0000
0400
8 AUGUST 1987

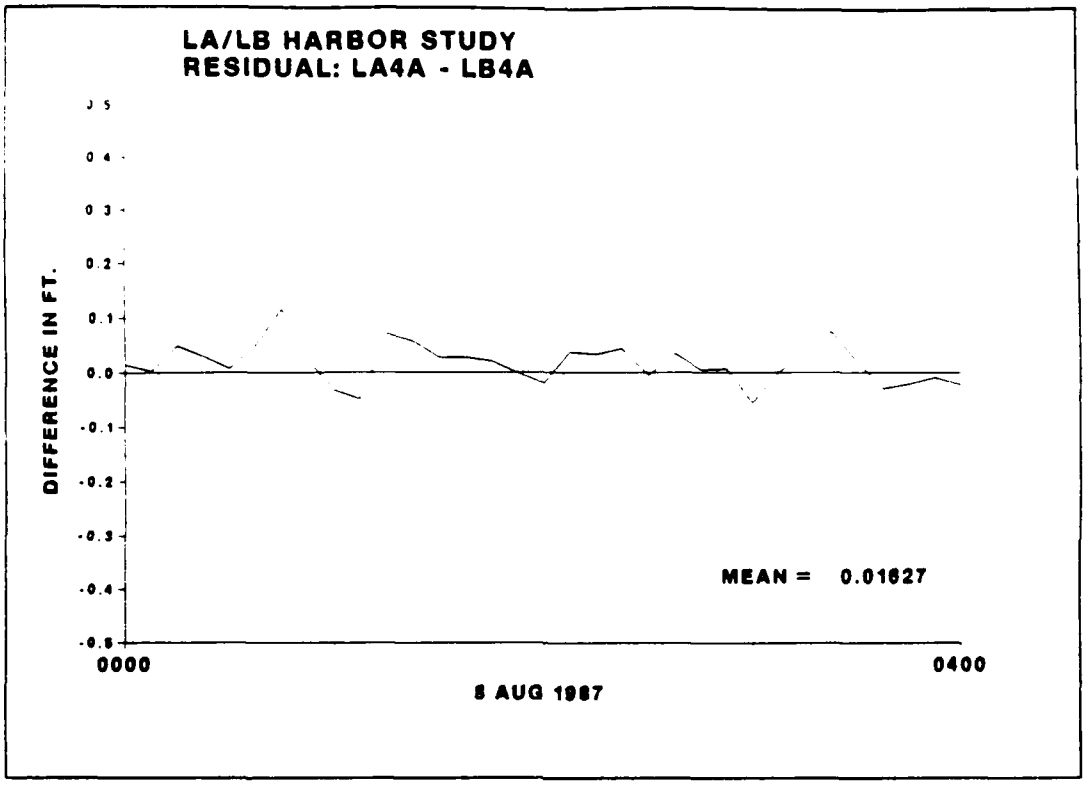

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG6S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.13057
0000
0400
8 AUGUST 1987

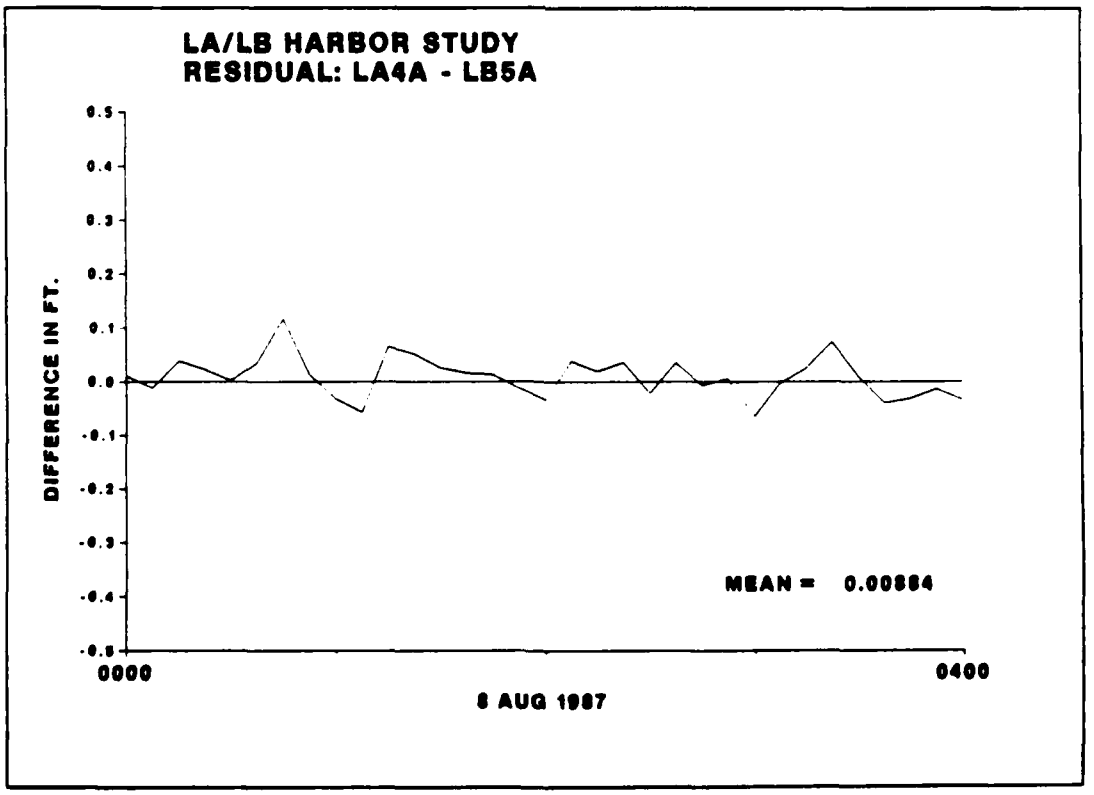

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG6S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.07057
0000
0400
8 AUGUST 1987

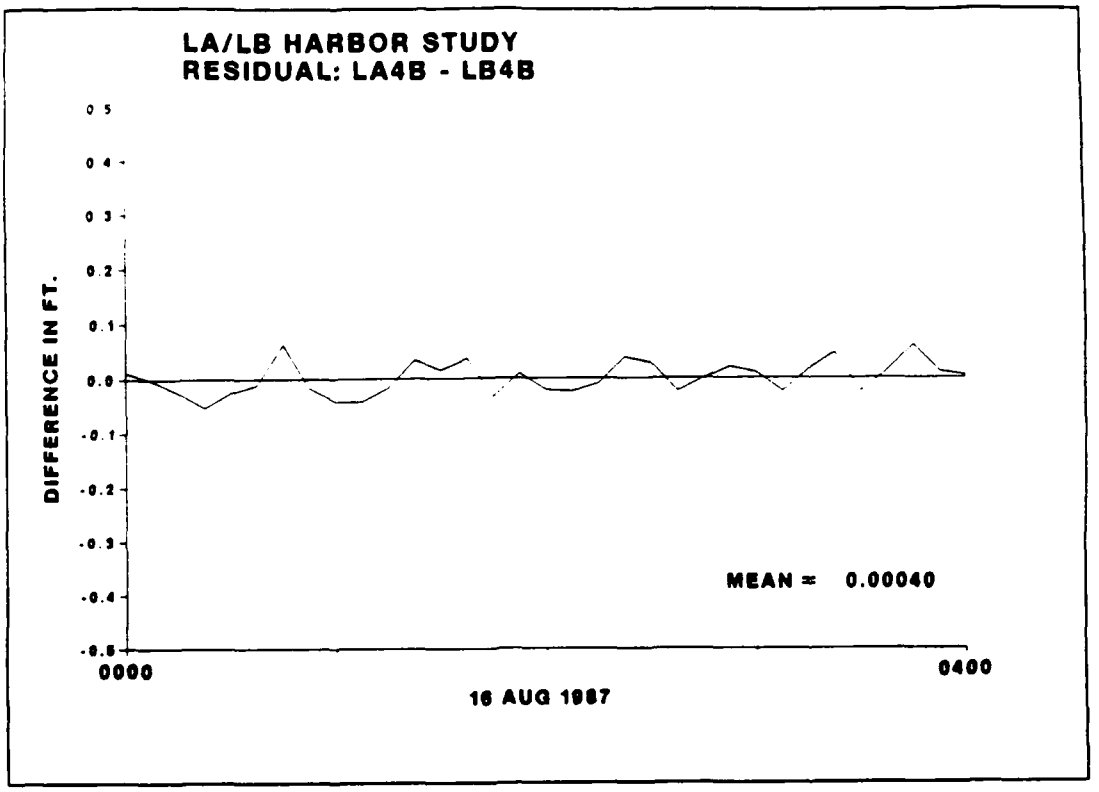

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - TG7S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.07184
0000
0400
8 AUGUST 1987

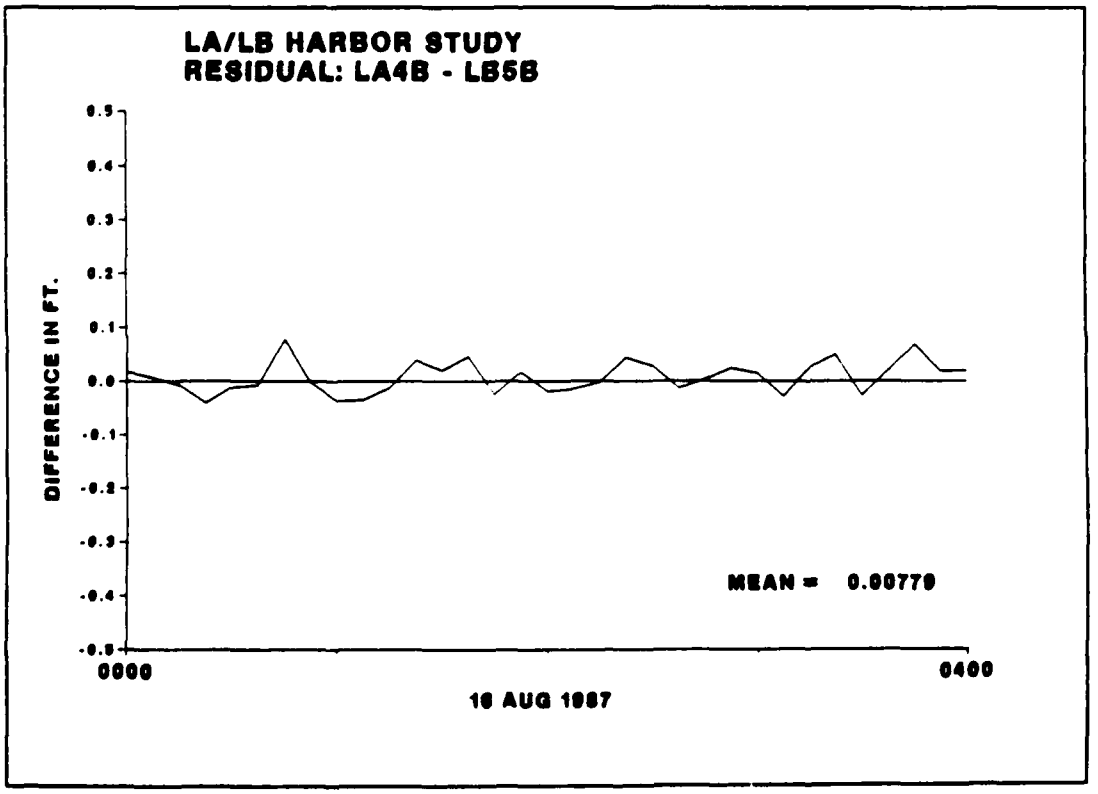

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG7S - TG3S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.13185
0000
0400
8 AUGUST 1987

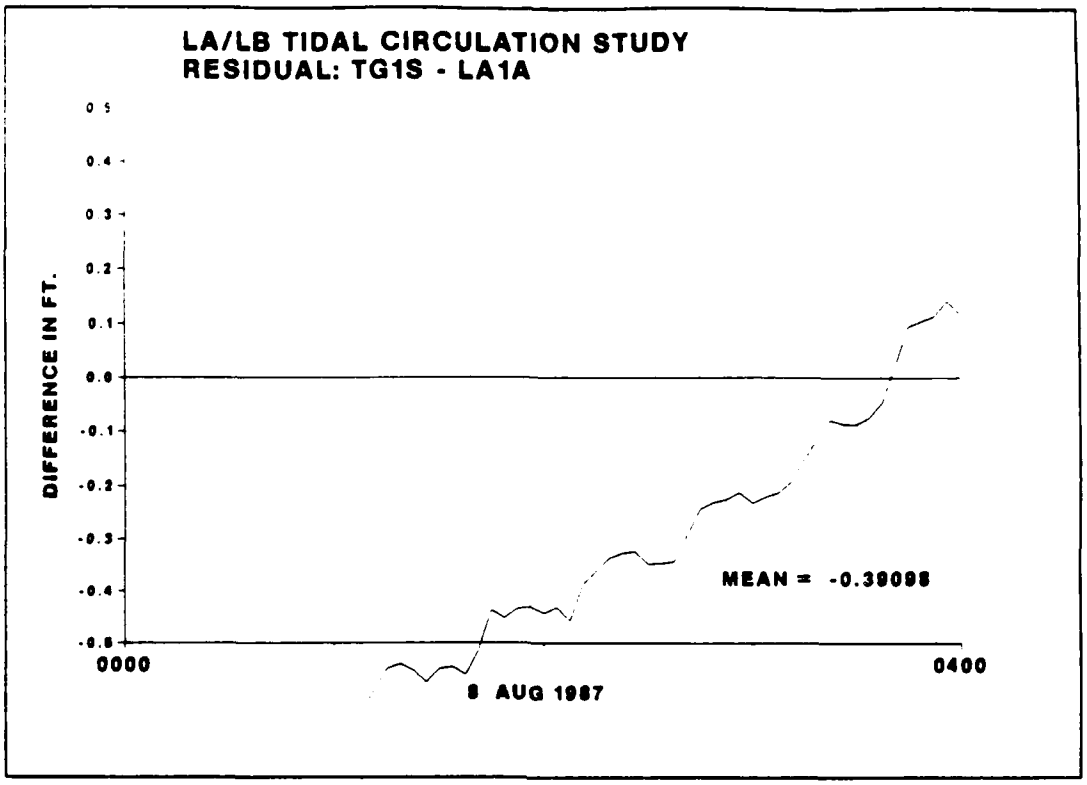

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG7S - TG6S
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.00127
0000
0400
8 AUGUST 1987

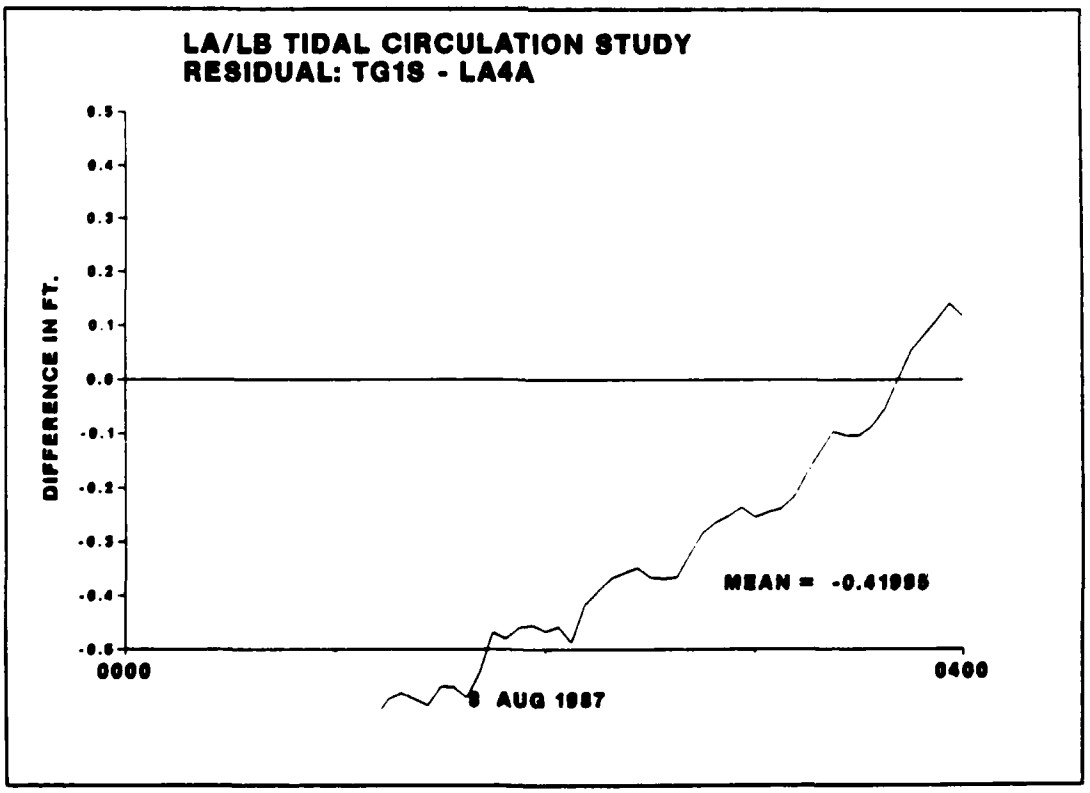

LA/LB HARBOR STUDY
RESIDUAL: LA4A - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.01627
0000
0400
8 AUG 1987

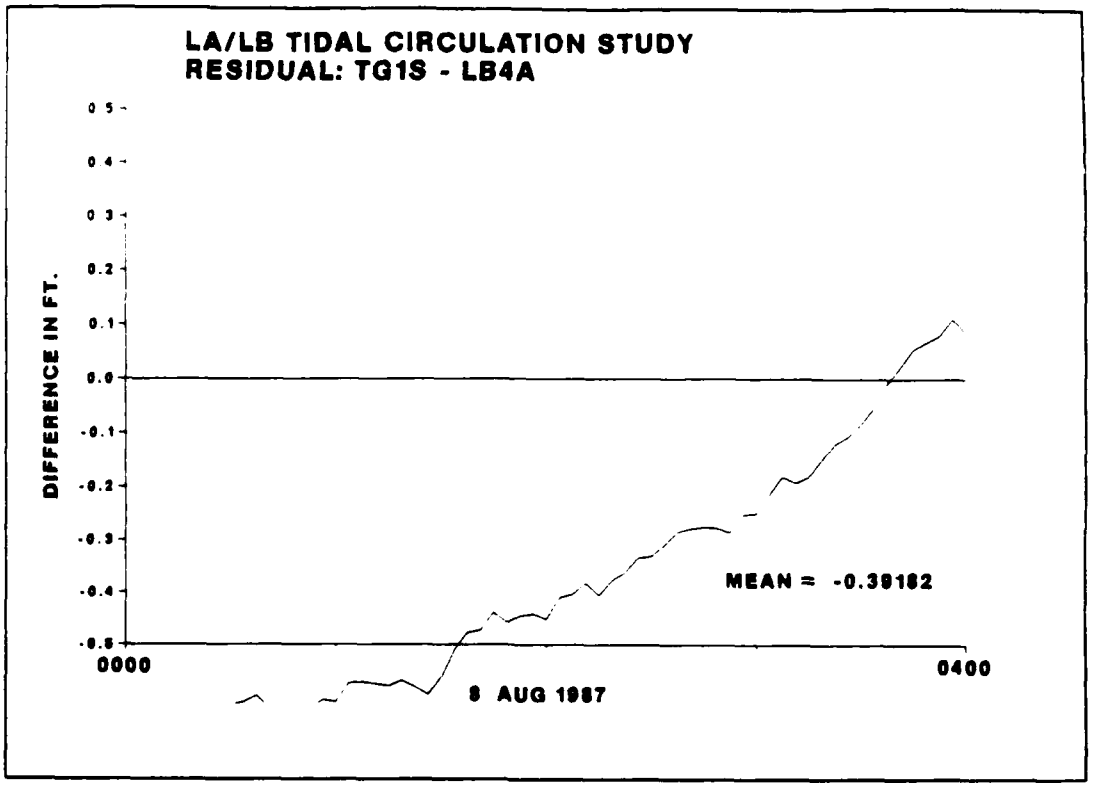

LA/LB HARBOR STUDY
RESIDUAL: LA4A - LB5A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00884
0000
0400
8 AUG 1987

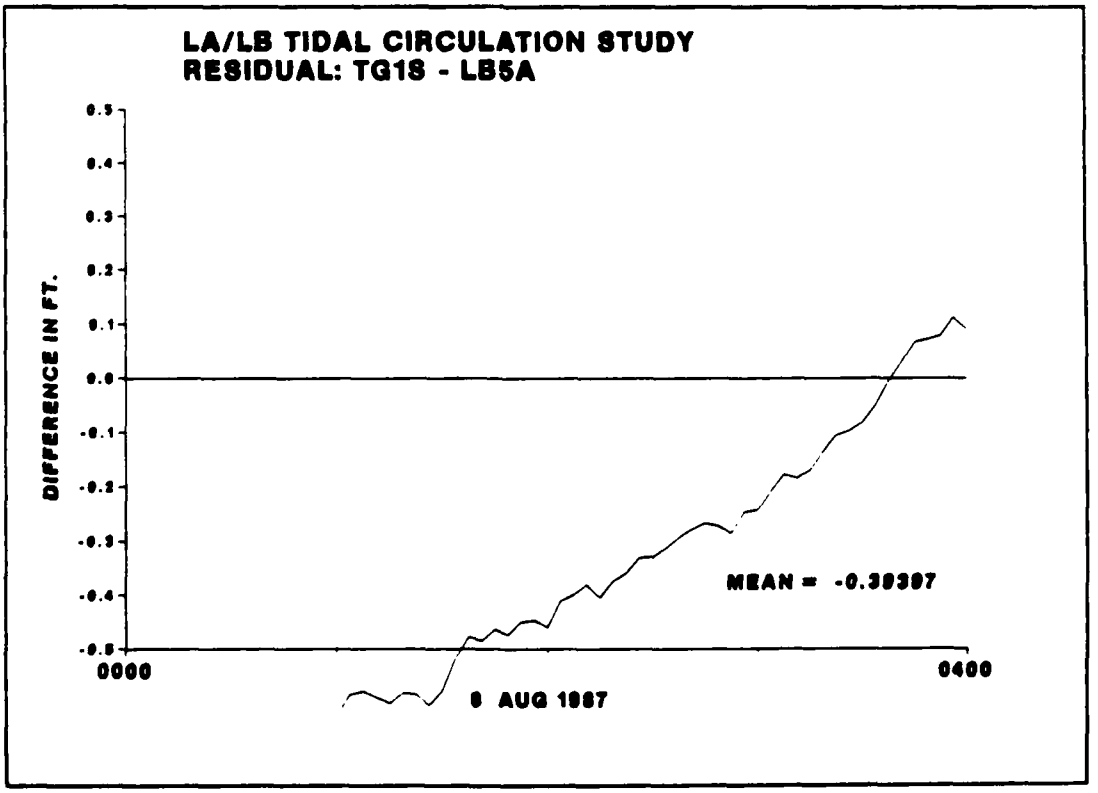

LA/LB HARBOR STUDY
RESIDUAL: LA4B - LB4B
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00040
0000
0400
16 AUG 1987

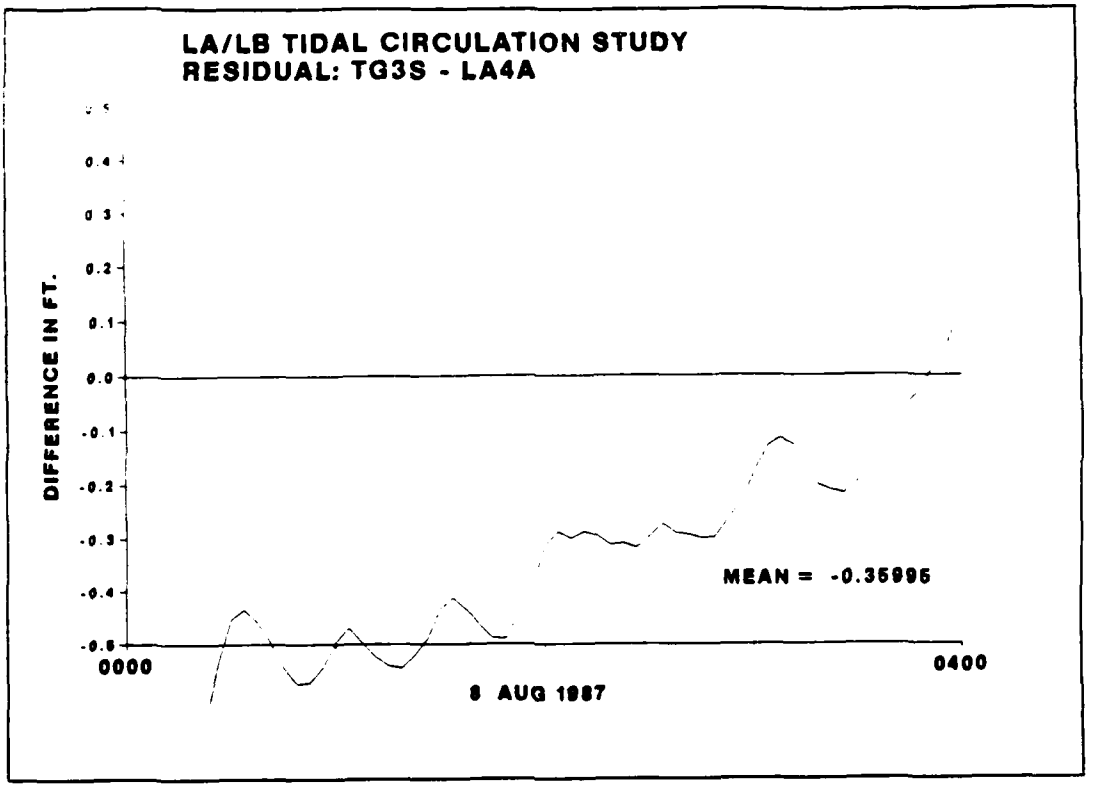

LA/LB HARBOR STUDY
RESIDUAL: LA4B - LB5B
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = 0.00779
0000
0400
16 AUG 1987

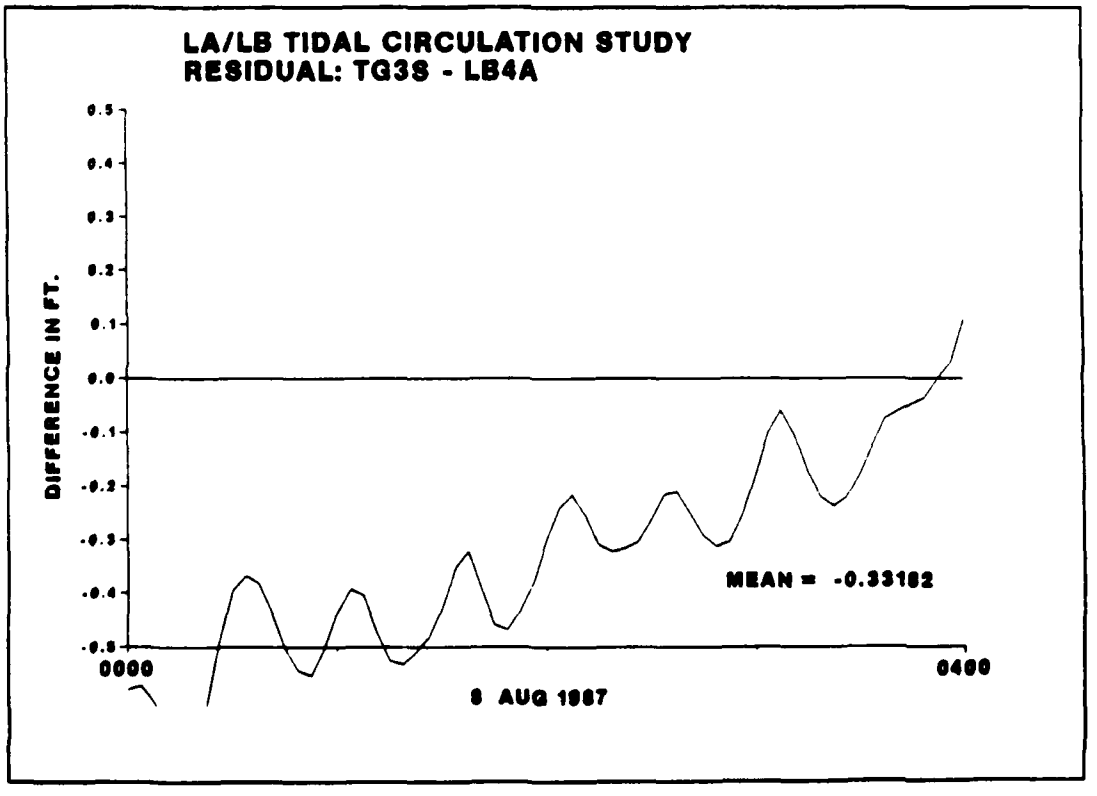

LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LA1A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.39098
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LA4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.41995
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.38182
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG1S - LB5A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.38397
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG3S - LA4A
DIFFERENCE IN FT.
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.35995
0000
0400
8 AUG 1987


LA/LB TIDAL CIRCULATION STUDY
RESIDUAL: TG3S - LB4A
DIFFERENCE IN FT.
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
MEAN = -0.33182
0000
0400
8 AUG 1987